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We have to return sincere thanks to our friends and correspondents for the many letters we have received expressing regret for the death of Richard P. Rothwell and sympathy with his family and the associates in his work, upon whom his loss has fallen with especial force. The number of these letters has been so great that it is impossible to answer them all promptly, and we have to take this method of acknowledging how deeply we feel the kindness of the writers.

The general tenor of these letters encourages us to say that we hope to emphasize our appreciation of our correspondents' kind words still further by keeping the "Engineering and Mining Journal" up to the standard set by the editor who controlled its course through so many years; and whose loss is mourned most sincerely by those who knew him best.

The developments in the southeastern oil region in Texas indicate plainly that that district is of much importance. Its limits are being gradually extended, and it seems possible that they will be found to include a considerable area not only in Texas, but in the southwestern part of Louisiana. It is quite probably the most important oil district opened in this country for a number of years, not excepting the California region. The present period of wild excitement will gradually give way to one of steady development which will prove the value of the district; but this will take some time. Meantime all sorts of reports come from the district, which are to be received with caution; but there is little doubt that it is really important.

The overflow of labor from Southern and Central Europe, which has been a marked feature of our own industrial situation for some years past, is felt in Western Europe also. Not long ago we noted trouble at some British mines caused by the introduction of Italian laborers. The importation of Italians has been the cause of trouble in France also. Now we have a complaint from Germany that native coal miners are being crowded out by Poles, who are coming into the country in large numbers. The German miners do not relish the change, but do not seem ready to take any active measures to prevent it as yet. It is only another result of modern improvements in transportation, which make it possible for surplus labor to be transferred at small cost from a country where employment cannot be found to another where labor is in greater demand. The tendency is, of course, to reduce the rate of wages, and against this the German miners threaten to organize.

A suggestion made by Mr. O. P. Austin, chief of the Bureau of Statistics of the Treasury Department, in the "National Geographic Magazine," is certainly worth careful consideration by the merchants and manufacturers who are engaged in building up our export trade in manufactures. It is, in brief, that a floating exposition should be organized, which could present our products in the ports of other nations, and could be sent from port to port as might seem desirable. One vessel would hardly be sufficient for this purpose, and several might be used, each representing special classes of products or manufactures. The vessels would be accompanied by experts, as well as by representatives of manufacturing firms, and they could collect much valuable information on the trade of the countries visited. Mr. Austin thinks that a fleet of this kind would be better, in some respects, than the so-called universal expositions, since it might be made to reach a greater number of people, and would also be continuous in its work. The cost would be divided among a number of firms or companies. The plan is a novel one and has many good points in it.

In the "Engineering and Mining Journal," February 16th last, we noted the tentative plan for the consolidation of the New Jersey Zinc and the American Chemical companies. We are now officially informed that the joint committee of stockholders of the two companies has decided that the union is not expedient, though it is understood that sufficient stock had been deposited to warrant the committee in going on with the plan. The reason given for abandoning the proposed consolidation is that "the anticipated advantages of a union are not sufficiently assured to justify proceeding."

This shows probably good judgment on the part of the committee. The only point where the business interests of the two companies really touch is in the marketing of the sulphuric acid made by the New Jersey Company as a by-product at some of its works. In other respects there is little approach to a common interest; while it is quite possible that some trouble might arise over questions of management. The two companies can get along very well apart. Moreover, it is a relief to find at least one committee of stockholders free from the present craze for consolidation.

The imposition of an export tax of 1 shilling a ton on coal which the British Government has proposed to Parliament, and which will probably be enacted, has called out a good deal of comment which is hardly

warranted by the facts. In Great Britain itself much has been said about the tax as an expedient for keeping coal at home and so economizing British supplies; but it has evidently been proposed as a revenue measure only, and its amount is not sufficient to discourage exports in any sensible degree. Of course coal operators and exporters are denouncing the tax, but their present action seems to be chiefly for effect upon Parliament. The tax of 1 shilling is far less than the increase in price which was the rule during a considerable part of 1899 and 1900, and which had very little effect on exports.

So far as it has a bearing on our own export trade, the tax practically increases prices of British coal abroad by 24 cents a ton. That amount is not sufficient to give our exporters any considerable advantage. In cases where it is an object to hold trade, indeed, it is quite possible that exporters may disregard the tax in making prices, and that the British consumer may really have to pay.

In short, we must consider the new tax as of small importance. Its effect on British trade and on our own coal exports will be very slight. It cannot be considered as an element of importance in the trade, and most of the comments made have taken the matter altogether too seriously.

ROTARY BLOWERS VERSUS BLOWING ENGINES FOR LEAD SMELTING.

A note in the communication from Mr. S. E. Bretherton on "Pyritic Smelting and Hot Blast," published in our issue of April 13th, 1901, refers to a subject of great interest to lead smelters. Mr. Bretherton remarked that he had been recently informed by Mr. August Raht that by actual experiment the loss with the ordinary rotary blowers was 100 per cent. under 10 pounds pressure; that is, it was possible to shut all the gates so that there were no outlet for the blast to escape from the blower and the pressure was only 10 pounds, or in other words the blower would deliver no air against 10 pounds pressure. For that reason Mr. Raht expressed himself as being in favor of blowing engines for lead-blast furnaces. This is of special interest, inasmuch as it comes from one who is recognized to stand in the first rank of lead-smelting engineers. Mr. Raht is not alone in holding the opinion which he does.

The rotary blower did good service in the old days when the air was blown into the lead blast furnace at comparatively moderate pressure. At the present time when the blast pressure employed is commonly 40 ounces at least and sometimes as high as 48 ounces the deficiencies of the rotary blower have become more apparent. Notwithstanding the excellent workmanship which is put into them by their manufacturers, the extensive surfaces of contact are inherent to the type and leakage of air backward is inevitable and important at the pressures now prevailing. The impellers of a rotary blower should not touch each other nor the cylinders in which they revolve, but they are made with as little clearance as possible, the surfaces being coated with grease which fills the clearance space and forms a packing. This will not, however, entirely prevent leakage, which will naturally increase with the pressure. Even the manufacturers of rotary blowers admit the defects of the type and concede that for pressures of 5 pounds and upward, the cylinder blowing engine is the more economical. Metallurgists are coming generally to the opinion, however, that blowing engines are probably more economical for pressures of 4 pounds or thereabouts, and some go even further. With the blowing engines the air-joints of piston and cylinder are those of actual contact, and the metallurgist may count on his cubic feet of air, whatever be the pressure. Blowing engines were actually introduced several years ago by Dr. M. W. Iles at what is now the Globe plant of the American Smelting & Refining Company, and we believe their performance has been found satisfactory.

The fancied drawback to the use of blowing engines is their greater first cost, but Mr. H. A. Vezin, a mechanical engineer whose opinions carry great weight, pointed out five years ago in the "Transactions" of the American Institute of Mining Engineers (Volume XXVI.) that per cubic foot of air delivered the blowing engine was probably no more costly than the rotary blower, but on the contrary cheaper, stating that the first cost of a cylinder blower is only 20 to 25 per cent. more than that of a rotary blower of the same nominal capacity and the engine to drive it. The capacity of a rotary blower is commonly given as the displacement of the impellers per revolution, without allowance for slip or leakage backward. Mr. Vezin expressed the opinion that for the same actual capacity at 2 pounds pressure, that is the delivery in cubic feet against 2 pounds pressure, the cylinder blower would cost no more than, if as much as, the rotary blower.

In this connection it is worth while making a note of the increasing tendency of lead smelters to provide much more powerful blowers than were formerly considered necessary, due, no doubt, in large measure to the recognition of the greater loss of air by leakage backward at the pressure now worked against. It is considered, for example, that a 42 by 140-in. furnace to be driven under 40-oz. pressure should be provided with a No. 10 blower, which size displaces 300 cu. ft. of air per revolution and is designed to be run at about 100 revolutions per minute; its nominal capacity is therefore 30,000 cu. ft. of air per minute; although its actual delivery against 40-oz. pressure is much less, as pointed out by Mr. Raht and Mr. Bretherton. The Connersville Blower Company, of Connersville, Ind., lately supplied the Aguas Calientes plant (now of the American Smelting & Refining Company) with a rotary blower of the above capacity and duplicates of it have been installed at other smelting works. The force required to drive such a huge blower is enormous, being something like 400 H. P., which makes it advisable to provide each blower with a directly-connected compound condensing engine.

In view of the favor with which cylindrical blowing engines for driving lead blast furnaces are held by many of the leading lead-smelting engineers, and the likelihood that they will come more and more into use, it will be interesting to observe whether the lead smelters will take another step in the tracks of the iron smelters and adopt the circular form of blast furnace which is employed for the reduction of iron ore. The limit of size for rectagular furnaces appears to have been reached in those of 42 by 145 in., or approximately those dimensions. A furnace of 66 by 160 in., which was built several years ago at the Globe plant at Denver proved a failure. Mr. H. V. Croll at that time advocated the building of a circular furnace instead of the rectangular furnace of those excessive dimensions and considered that the experience with the latter demonstrated their impracticability. In the "Engineering and Mining Journal" of May 28th, 1898, he stated that there was no good reason, however, why a furnace of 300 to 500 tons daily capacity could not be run successfully, but considered that the round furnace was the only form permissible. We are unaware whether Mr. Croll was the first to advocate the use of large circular furnaces for lead smelting, but at all events there are other experienced metallurgists who now agree with him, and the time is, perhaps, not far distant, when they may be adopted.

AN ARREST OF LONDON PROMOTERS.

Details have arrived by mail giving some of the particulars of the alleged frauds upon London and provincial banks by promoters of smelting and other schemes, which were referred to briefly last week in the financial cables. The "South Wales Daily Post" of April 1st states that Henry E. Fry and Richard H. Everitt, of the firm of Fry, Everitt & Company, have been arrested and remanded for trial, charged with forging and uttering warrants for the delivery of ores, upon the strength of which they obtained from the banking house of Barclay, Bexin & Company and several other large sums of money, rumored to be between £50,000 and £100,000. Upon their examination, Fry, who was arrested at Bristol, is said to have confessed, while Everitt answered, "If I am charged personally with forgery, then I am not guilty."

It will be remembered that the "Engineering and Mining Journal" has had occasion to severely criticise the statements put forward on behalf of the Smelting Corporation, Limited, which was incorporated to take over from the Burnham Syndicate the so-called Fry patents or processes for smelting directly lead-silver ores, high in zinc. The process upon which the promoters particularly depended was said to have been worked out by Fry, Everitt & Company at Swansea, and to be used at the large new plant erected by the Smelting Corporation, Limited, at Elsmereport, on the Manchester Ship Canal. There was little doubt that the commercial value of this process was greatly overstated by the promoters, and over-estimated by the very respectable gentlemen who formed the Burnham syndicate and became directors of the Smelting Corporation. Among them was Right Hon. William Lidderdale, ex-governor of the Bank of England, Lord Tweedale, Mr. Wilberforce Bryant, of Bryant & May, and a member of the banking house of Barclay, Bevin & Company, who are now sufferers through the alleged frauds.

The principal so-called Fry Patent consisted of the smelting of zinc-lead ores, with iron and salt-cake as a flux, whereby the zinc was obtained in a fluid slag, the silver going with the lead bullion. The process as shown at Swansea was reported upon by several American experts, among them Mr. August Raht, who spoke very well of it. The new works at Elsmereport were designed by Mr. W. B. Devereux, the well-known Colorado metallurgist, and whatever may be the value of the patent, or the merits of the special process which it was intended to employ, the works are American in design, containing all labor-saving devices, so far as practicable, and they should be available for a general smelting business, capable of successful competition with such of the older works of Swansea and elsewhere as are still doing everything by hand, employing small furnaces and prodigal of labor.

At the same time it must be said that the conditions have materially changed since the Smelting Corporation was organized. At that time there were heavy penalties for zinc, but at present this penalty is fast disappearing. The Block 10 ore from the Broken Hill mines, which

was treated in Swansea and at Elsmereport, is now successfully concentrated in Australia, and the increase in the value of zinc has justified the shipments of tailings from zinc-lead concentrates from Leadville, Colo., for instance, to Antwerp.

NEW PUBLICATIONS.

"Drawback on Exports." New York; prepared and issued by Allen Comstock & Company. Pages, 26.

This pamphlet calls the attention of manufacturers and exporters to the customs drawback law, giving a summary of that law and showing what exports are entitled to its benefits, and how claims should be presented and collected. The firm which has prepared and issued this book has had much experience in presenting and collecting claims.

"Proceedings of the Ninth Annual Convention of the California Miners' Association, held in San Francisco, November 19th-21st, 1900." San Francisco; published by the Association. Pages, 256; illustrated.

This publication contains a full report of the proceedings of the association at its last yearly meeting, showing the work which it is doing and the plans laid out for the future. Reports of the proceedings appeared in our columns at the time, but of course did not include the full details presented in the official minutes. The volume also contains some papers and committee reports of value.

"American Industrial Education. What Shall It Be?" Preliminary Report of a Committee of the Society for the Promotion of Engineering Education. Reprinted from the "Proceedings" of the Society by Henry S. Jacoby, Secretary. Ithaca, N. Y. Pamphlet, pages 74. Price, 25 cents.

This is a reprint of an interesting and valuable report made to the Society for the Promotion of Engineering Education at the annual meeting in July, 1900. It includes also the discussion of the report which followed its presentation. The members of the committee are all instructors of experience, and their views will be read with interest.

"Internal Commerce. Production and Transportation of the Principal Articles of the Internal and Foreign Commerce and Commerce of the Great Lakes of the United States during the Year 1900." Compiled under direction of O. P. Austin, Chief of Bureau of Statistics of the Treasury Department. Washington; Government Printing Office. Pages, 132; with maps and diagrams.

This is a very convenient compilation of statistics, which brings together a great deal of information from Government and other reports in a form where it can be referred to readily. The Bureau of Statistics deserves thanks for the work it has done in this and other publications. They make accessible the statistics which are to be found in various forms, perhaps scattered through a number of separate reports; and they are of much service to business men.

"De Hochofenbetriebe am Ende des XIX Jahr-hunderts." By Dr. Ernst Friedrich Duerre. Berlin, Germany; W. & G. Loewenthal. Pages, 170; with 19 plates and 98 illustrations in the text.

In this book Dr. Duerre has collected and presented much information in relation to blast-furnace practice, chiefly in Germany and Austria, though some examples of American furnaces are included. It is hardly up to its title, however, since the practice and developments described are rather those of 1890-95 than of 1900. Some of the important developments of the past two or three years are not touched upon at all, or are but briefly alluded to. The illustrations of blast furnaces given in Germany do not include those of the latest type; while the American example given is one of the earlier furnaces at Duquesne.

Apart from this the book contains much that is valuable, especially on iron ores and their preparation for the furnace; on fuel, and on coke making. There is also a section on transporting and handling material which seems to have been brought more nearly up to date than any other part of the book. At any rate, it is an advance of some years on most other German treatises of the kind.

BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"The Tinsmith's Pattern Manual." By Joe K. Little. Chicago; the "American Artisan" Press. Pages, 248; illustrated.

"Inventors' Manual. How to Work a Patent to Make it Pay." New York; Norman W. Henley & Company. Pages, 116. Price, $1.

"The Principles and Practice of Linear Perspective." By Herman T. C. Kraus. New York; Norman W. Henley. Pages, 56; with 14 plates. Price, $2.50.

"Thirty-first Annual Report of the Board of Directors of City Trusts of the City of Philadelphia. For the Year 1900." Philadelphia, Pa.; published for the City. Pages, 240.

"Gold Milling Principles and Practice." By C. G. Warnford Lock. London; E. & F. N. Spon, Limited, and New York; Spon & Chamberlain. Pages, 824; illustrated. Price, $10.

"Geraethe und Maschinen zur Bergmaennischen Foerderung." By Carl Volk. Leipzig, Germany; Arthur Felix. Pages, 116; with 155 engravings. Price (in New York), $2.25.

"Third Annual Report of the Bureau of Labor and Industrial Statistics for the State of Virginia. 1900." James B. Doherty, Commissioner. Richmond, Va.; State Printing Office. Pages, 290.

"Seventh Report of the Bureau of Agriculture, Labor and Industry of the State of Montana. For the Year Ending November 30th, 1900." J. H. Calderhead, Commissioner. Helena, Montana; State Printers. Pages, 612; illustrated.

"Anton von Kerpely's Bericht über die Fortschritte der Eisenhuetten-Technik im Jahre 1896." Edited by Theodor Beckert. Leipzig, Germany, 1901; Arthur Felix. Pages, 196; with 162 engravings. Price (in New York), $4.20.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of thewriter. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Canadian Corundum.

Sir: In your issue of April 13th Dr. J. H. Pratt makes some comments on Canadian corundum. He seems to fear that the development of parting planes, etc., will affect the quality of the material. I may quote the old saying that "the proof of the pudding is in the eating." If Dr. Pratt will consult my report to the Bureau of Mines for 1898, Volume VIII., he will see that the wheels made from the material taken from the Robillard deposit, to which he refers, are satisfactory in every way. Moreover, if he will consult such firms as the Hart Emery Wheel Company or the Norton Emery Wheel Company he will get further evidence as to the high quality of this Canadian corundum.

Dr. Pratt does not appear to know that the quality has been proved to be of the highest grade by actual working tests as he says, "Regarding the statement that the grain, however, is fairly strong and the cutting edges are fairly sharp, this could only be accurately determined by making up the corundum into a wheel and testing it." Numerous wheels have been made during the past two years by different firms, and the material has been found to come up to all requirements. Indeed, several manufacturers have told me that the Canadian corundum is on the whole the best abrasive material they have ever handled.

Dr. Pratt further speaks of the probability of the quality of the corundum changing for the better as greater depth is attained. No higher quality is required, as this corundum has already been proved to be the best material on the market which is obtainable in quantity; and it is adapted to all the needs of those using abrasive material on a large scale.

The character of the York River corundum is also mentioned by Dr. Pratt. While this material is also of a satisfactory quality it, like that of North Carolina, is more difficult to clean than that from the Robillard property and hence cannot be put on the market in such great purity.

W. G. Miller.

Kingston, Ont., April 19, 1901.

Synthetical Coal.

Sir: I could hardly presume upon your time or space to go into all the minor details of the gradual development and progress of our process of making synthetical coal, but will state a few facts which I hope will make our results clear. It has been found by carefully conducted tests that the coal in question develops in combustion an average of 13,800 B. T. U., a result which would not be expected from a computation of the sum of the calorific values of the separate constituents; hence our claim that we have potentialized some of the constituents by the specific combination. The development during the combustion of acetyline gas is affected.

As to "the introduction of a more expensive fuel than natural coal," we shall not presume to "carry coals to Newcastle," in other words, we shall not advise unless for specific purposes in the mechanical arts, the manufacture of synthetical coal in bituminous coal producing states, but we shall undertake to produce coal in States and localities more or less remote from mines and pipe lines, a coal which will give an efficiency in horse-power on much less cost per horse-power than is at present paid.

The cost of a fuel in New England, for instance, is not because of the cost of mining or preparation but in transportation, and we take into account that 70 per cent. of our coal is found where it is desired to use it, hence it is but rational to conclude that this is a factor in cheapening the coal. From the Geological Survey we learn that there are 125 square miles of available peat in Massachusetts, which would yield 180,000,000 tons of dry peat. This valuable product has never been utilized in this country as it has been abroad on commercial lines. We have caused to be made for our specific information a survey of 24 States, and have found conditions which we believe to be advantageous to our new industry. We claim no startling or supernatural discoveries but shall apply commercially, scientific facts. The abundance and cheapness of crude petroleum seem to warrant its use, provided this can be done in a practical manner. This has been accomplished.

No especial form of grate or firebox is required in economizing the coal, into which petroleum enters as an essential factor. The advantage of our coal is in the fact that the fire has no localized intensity, hence there is no localized strain on boilers. From the absence of sulphur contained there is less corrosion of boilers and firebox plates; also, for the above reason, it is of especial advantage in smelting, reheating iron or copper, the manufacture of pottery, and various other mechanical arts.

Another thing we have accomplished is the method of drying the peat, which is effected in part chemically, and in part by the thermal agencies. Another feature which we believe hitherto not accomplished in briquetted fuels is the prevention of deterioration by volatilization of gaseous hydrocarbons.

G. M. Randall.

Boston, April 4, 1901.

POWER FROM LIQUID AIR.—A French scientist, M. d'Arsonval, has asserted that liquefied air when used for motive power purposes only produces 5 per cent. of the force spent in producing it. Such motors can only be used in laboratories, or for floating companies, or in submarines, where expense does not matter.

IRON ORE AND IRON PRODUCTION OF SPAIN.

The advance statement of the production of iron ore and iron in Spain for the year 1900, prepared for the "Revista Minera" by Don Adriano Contreras, gives the interesting figures noted below, all being in metric tons. The production of iron ore by provinces was as follows:

	1899.	1900.	Changes.	Per ct.
Vizcaya	6,495,564	5,317,920	D. 1,177,644	18.1
Santander	1,158,169	1,117,017	D. 41,152	3.6
Murcia	668,947	806,709	I. 137,762	20.6
Almevia and Granada	537,144	562,758	I. 25,614	4.8
Sevilla	309,688	365,434	I. 55,746	18.0
Lugo	14,000	104,110	I. 90,110	643.6
Other provinces	214,221	206,298	D. 7,923	3.7
Totals	9,397,733	8,480,246	D. 917,487	9.8

In Murcia, Sevilla and Lugo there were increases, due to the opening of new mines; an increase is also seen in the ore from other provinces. The old mines of Vizcaya showed a large decrease. The exports for the year, which were 92.3 per cent. of the production, were as follows, with their destinations:

	1899.	1900.	Changes.	Per ct.
Great Britain	6,224,229	5,484,323	D. 739,906	11.9
Germany	1,544,449	1,441,128	D. 103,321	6.7
France	443,818	450,746	I. 6,928	1.6
Belgium	254,860	247,351	D. 7,509	2.9
United States	132,422	195,964	I. 63,542	48.1
Other countries	13,359	3,758	D. 9,601	73.7
Totals	8,613,137	7,823,270	D. 789,867	9.2

The largest decrease was in the exports to Great Britain. The shipments to the United States showed a considerable gain. Included in the exports to Germany are 1,416,198 tons in 1899 and 1,268,632 tons in 1900, which were credited by the custom house to Holland, but which really went to Dutch ports in transit to German furnaces.

The consumption of iron ores in Spain is estimated at 656,976 tons. The production of pig iron was 294,118 tons, of which about 19,000 tons were made with charcoal, the balance with coal or coke. In 1899 the pig iron made was 299,765 tons, so that there was last year a decrease of 5,647 tons, or 1.8 per cent. Of the pig iron made in 1900 there was 27,169 tons exported, a decrease of 20,750 tons. The approximate consumption in Spain was 266,949 tons, as compared with 258,846 tons in 1899.

The production of puddled iron, of steel ingots and of finished iron and steel in all forms—bars, plates, forgings, etc.—is given in the table below, 18 establishments having contributed to the output:

	1899.	1900.	Changes.	Per ct.
Puddled or wrought iron	66,568	65,045	D. 1,523	0.2
Bessemer steel ingots	68,300	91,586	I. 23,286	34.2
Open-hearth steel ingots	49,350	59,048	I. 9,698	19.8
Finished iron and steel	173,566	212,121	I. 38,555	22.2

The total production of finished iron and steel was 212,121 tons, as above; the imports were 37,540 metric tons, an increase of 15,653 tons. This gives an approximate consumption in 1900 of 249,661 tons, which was an increase of 54,208 tons, or 27.7 per cent., over the preceding year.

COKE OVENS OWNED BY THE UNITED STATES STEEL CORPORATION.

Written for the Engineering and Mining Journal by J. A. Coll.

One of the most interesting features of the combination of the big steel and iron companies into the United States Steel Corporation is the amalgamation of the coal and coke interests which were allied to the different corporations now merged in the great concern. Westmoreland and Fayette counties in Pennsylvania comprise the central area of this combination. The H. C. Frick Coke Company—a subsidiary interest of the Carnegie Steel Company—which was the large and pioneer coke interest in the Connellsville coking belt, when the organization of the steel trust was completed was the central point in the coke industry about which all the other coke and coal holdings of the new company are grouped. Thomas Lynch, formerly president of the H. C. Frick Coke Company, and the man who controlled the active management from the start, was made general manager of all the coke and coal interests of the Steel Corporation. His headquarters are in Pittsburg. He is at present conducting an inspection of all the interests placed under his charge, including those in Westmoreland, Allegheny and Fayette counties in Pennsylvania. An idea of the extent of the coke end of the steel corporation may be gleaned from the statement that the H. C. Frick Coke Company alone owned and operated these ovens: Adelaide, 375 ovens; Bessemer, 273; Buckeye, 160; Calumet, 260; Coalbrook, 120; Davidson, 333; Diamond, 66; Donnelly, 254; Eagle, 80; Enterprise, 51; Foundry, 97; Frick, 105; Hazlett, 150; Henry Clay, 120; Kyle, 306; Leisenring No. 1, 500; Leisenring No. 2, 500; Leisenring No. 3, 504; Leith, 306; Lemont No. 1, 227; Lemont No. 2, 350; Mammoth, 510; Mayfield, 104; Morgan, 165; Mullen, 82; Oliphant, 252; Painter, 228; Redstone, 446; Standard, 905; Sterling No. 1, 100; Sterling No. 2, 294; Summit, 142; Tip Top, 121; Trotter, 464; United No. 1, 350; United No. 2, 301; United No. 3, 197; Valley, 251; West Orveton, 110; White, 200; Wynn, 130; Youngstown, 242. This makes a total of 10,731. The United States Steel Corporation has a direct ownership of all these plants, and is operating them, with a very few exceptions. The plants in the Masontown coke-field, in southern Fayette County, which come under the Steel Company now by the change of ownership, are all large and fine plants. The Eureka Fuel Company, which was the fuel end of the Federal Steel Company of Chicago, the second largest company merged in the steel combination, has three 500-oven plants just completed, one at Leckrone, one at Footdale and one at Buffington. The latter works are not quite completed yet, but building operations are active. Another coke plant of like size has been projected by the Eureka Fuel Company on the outskirts of Masontown, but whether or not this work will go on now is a question, since the corporation has so many ovens to draw from.

The American Coke Company, the coke and coal interest of the American Steel & Wire Company, has three fine plants in this district, also one at Edenborn and one at Lambert, each with 500 coke ovens, and a plant at Gates which produces coal alone for river shipment to the corporation's furnaces along the Monongahela River. The plant at Lambert is yet under construction, but will be completed by the fall.

The Continental Coke Company, which was organized by the National Steel Company, also has three plants in Fayette County, but these are within the Connellsville coking belt, southwest of Uniontown. Each plant has 300 ovens, and each is so constructed and laid out that it can readily be increased to 500 ovens. In addition to these three plants the American Coke Company owned the Baggaley plant with two mines and 400 ovens in the northern end of the Connellsville coke region, and the Dorothy plant of 300 ovens in the Latrobe District, in Westmoreland County. These pass under the control of the United States Steel Corporation. The Federal Steel Company was, after the selling out of his half interest by H. C. Frick, the sole owner and operator of the four plants of the Southwest Connellsville Coke Company, located in the north end of the Connellsville coke region, including in all four plants 1,233 coke ovens. These are now owned by the Steel Corporation also, and with the National Steel Company also went the 400 ovens and the plant at Marguerite in Westmoreland County. With all these newly acquired purchases, the steel corporation becomes owner of 5,733 coke ovens, besides those purchased with the H. C. Frick Coke Company. With the ovens purchased at the Benwood by-product plant, and those in all other coke districts, the United States Steel Corporation owns in all 14,000 more coke ovens, making the total 30,000 ovens.

Taking an actual count, the 5,733 newly purchased ovens, and the 10,731 taken over by the H. C. Frick Coke Company into the Carnegie Steel Company, the steel corporation got 16,464 ovens in the Connellsville coke region and on its borders. Working six days a week, the production of coke from these ovens would not be less than 220,000 tons weekly, or about 11,500,000 tons in a year. It has been estimated that it takes about 1¼ tons of Connellsville coke to make a ton of pig iron, so it can be easily figured out that the United States Steel Corporation will be well supplied with fuel for many years to come.

CHIMNEY AND MECHANICAL DRAFT.—At a recent public discussion of the smoke nuisance in Boston, Mr. Edward Atkinson predicted the passing of the tall chimney and the substitution of the low stack of large area with draft produced by mechanical means. He prophesied that the next generation would regard our chimneys as monuments to our ignorance left standing because they would not pay for taking down.

RECONSTRUCTED GRANITE.—This substance is natural granite pulverized and re-formed under pressure and a high heat into blocks and other forms. It was used at first for ornamental blocks, but was later found to be well adapted for making insulators for electric work. Its latest use is for linings of sulphite digesters for treating wood pulp. It is well adapted for this and similar purposes, as the material is not affected by acids, and chlorine does not act on it at any temperature. This material is made by the Reconstructed Granite Company, of 14 Dey Street, New York.

FAST PRINTING TELEGRAPH.—The Pollak & Virac system, exhibited at Paris last year, is said to transmit and write messages at the astounding rate of about 6,000 words a minute. Two wires are required. The writing is not a fac-simile of the sender's hand, but more like printer's script. The message is received on bromide emulsion paper and printed by a moving ray of light, and is then developed and fixed in the apparatus, and discharged ready for reading or drying and storing. The sensitized paper moves continuously, as in various recording instruments. The point of light is controlled by two diaphragms like those of the telephone, one giving vertical, the other horizontal direction independently and simultaneously, thus tracing the letters. The sending apparatus uses a punched slip with five rows of holes, acting on the principle already applied in ordinary multiplex telegraphy.

GERMAN COAL MINES IN CHINA.—The London "Colliery Guardian" notes a report from a Berlin correspondent that the representatives of the German Shantung Mining Company, who were obliged through recent events to abandon the coal deposits which they worked on Chinese territory and seek protection, have been able to resume working, thanks to an understanding arrived at between the governor of the colony and the viceroy of the province. Several high officials had been appointed by the latter to restore possession of the mines in due form; and great was the astonishment of the company's representatives to find, on reaching the frontier of the German concession, a military escort waiting to conduct them to Fang-tse, their principal seat of operations, when they found their houses and the office decorated with flags and flowers. Engines and plant were in perfect order; and even a stock of coal had been lime-washed to protect it from depreciation. The houses of the employees and their contents were untouched.

MINERS' ANEMIA.—The London "Colliery Guardian" says that last year the Provincial Council of Liege, Belgium, voted a sum of 20,000 fr. in favor of the workmen who lost a month or more during the previous year owing to "ankylostomasia," or miners' anemia; and the distribution of this sum has afforded some information as to the extent and gravity of the malady. Out of the 22,000 underground hands in the province of Liege, 259 (all miners except one) applied for participation in the fund; and three of these had lost a whole year, four from 200 to 300 days, 19 from 100 to 200 days, 30 from 70 to 100 days, 83 from 35 to 70 days, and 74 less than 35 days, while 41 were disqualified because they had not lost so many as 30 days, showing the average period of incapacity from this cause to be about 60 days. It is very difficult to get the men to take the hygienic measures recommended for preservation against the malady; but wherever they have been employed persistently the most favorable results have ensued.

THE COAL-FIELD OF SOMERSET COUNTY, PA.

Written for the Engineering and Mining Journal by W. G. Irwin.

The development of the Windber coal-fields—which was described in the "Engineering and Mining Journal," February 17th and 24th, 1900—is only the beginning of the coal industry in Somerset County. During the past eight or ten months not less than one-sixth of some 700,000 acres embraced in the area of this mountain county have been bought up by capitalists and coal operators. The whole country is underlaid with coal seams. These are five in number and run in thickness from over 5 ft. down to a little more than 3 ft. All these veins in most parts of the county lie above water level and are self-draining when operated, drift mines being employed. A number of these coal seams can be worked from one tipple and this is being done along the line of the Cambria & Somerset branch.

The Somerset County coal-fields are much like those of Cambria and Clearfield counties in some particulars. The Somerset County coal is a steam coal and is practically smokeless. While this field is detached from the Pittsburg coal basin the coal seams can be identified with the Upper Freeport, the Lower Freeport, the Upper Kittanning, the Lower Kittanning and the Brookville veins west of the mountains.

For several years coal mining on a moderate scale has been conducted along the Somerset & Cambria Branch of the Baltimore & Ohio, which intersects the county from north to south and divides it into two nearly equal parts. The deals in coal lands in this part of the county have been numerous during the past few months. English capitalists have purchased large areas and the Baltimore & Ohio Company has also become a large owner of these coal lands. Lately the Philadelphia & Reading Company has opened up the Reading Mines near Mosteller, a few miles north of Somerset and two coal seams are now being worked at these mines with one tipple. Other mines are located at Hooversville and at Bethel on the Somerset & Cambria Branch and there are now a number of important mines along Ben's Creek and also along Well's Creek.

The most important of the mines along the Somerset & Cambria Branch are those of the Listie Mining & Manufacturing Company, located at Listie, near Somerset. During the past six or eight years these mines have been in the process of development and now have an annual capacity close to 200,000 tons. The Listie plant is a modern one, electric haulage and mining machines being largely employed. Automatic loaders are also in use. About 200 men are employed by this company.

This loader is a carrying machine. It carries the product whether it be coal or other material, and pushes it out to the ends of the car, thus avoiding the possibility of breaking and mashing the material handled. It is especially true of coal that the more carefully it is handled the better condition it is in for the market, and it will hence demand a better price. The machine is very heavily constructed, and yet while it weighs about 8 tons, it can be placed in the car ready for operation in about half a minute, and can be removed in the same length of time. The Ottumwa Box Car Loader Company, which is the owner of the patent, and the sole manufacturer of the machines, has a large and well-equipped factory which is devoted entirely to the manufacture of box-car loading machinery. There are now machines working in 13 different States and the company has shipped a second machine to British Columbia.

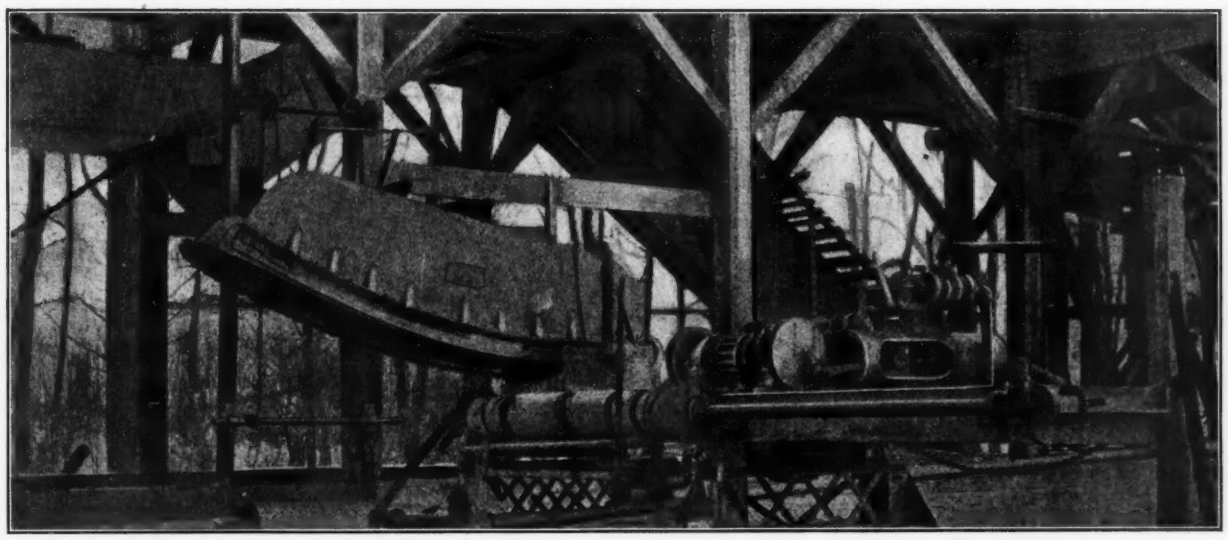
The Somerset smokeless coal comes largely from the Listie Mines. Numerous comparative tests of this product have been made in Pittsburg and other cities and the product has been found to be almost smokeless in comparison with the Pittsburg coal. In these tests the run-of-mine Somerset coal has been used as against the Pittsburg lump, the latter product in many cases having been subjected to a drying process. These tests have shown a saving in amount of fuel in favor of the Somerset product, but there is an excess of ash. Observations as to the smoke made by James J. Brennan, city smoke inspector of Pittsburg, show that in over three hours there was but 18¼ minutes when smoke was given out and that the dense black smoke was seen for only 2½ minutes. The Somerset Smokeless Coal Company also operates mines in this district and this company has been instrumental in introducing this coal into a number of western cities.

The Baltimore & Ohio has planned a number of new lines in this coal-field. One of these will extend from near Mosteller Station on the Somerset & Cambria Branch into the coal-fields of Jenner township. It will run along Beaver Dam Creek and the Quemahoning to Stanton's Mills. Nearly the whole area of Jenner township has lately been bought up by coal operators at prices ranging from $10 to $40 per acre. For a great many years Somerset County has had thousands of acres of cheap lands but this is no longer the case, for the developments of the past few months have sent prices up and now from $50 to $100 per acre is being asked for lands. Coal mines will likely be opened at Jenner, a village at the eastern foot of Laurel Hill. The new line being built through from Ligonier Valley and which will connect Somerset County with the Pennsylvania Railroad also intersects Jenner township. This road is already completed to the top of Laural Hill. It will give Somerset County a short line to Pittsburg, reducing the distance from 110 miles to about 70 miles.

The lumber business is also an important one in many sections of this mountain county. The Babcock Lumber Company, which has been operating here for several years, is depleting the forest areas at a wonderful rate. Other big lumber concerns have lately purchased forest areas and will opperate big saw mills. The Byers-Allen Company, whose mills are located at Ligonier and which is building the Pittsburg, Westmoreland & Somerset road, is a large owner of timber lands in Somerset County, and this concern is already operating there, the logs being hauled to Ligonier over the new railroad, where they are converted into lumber. Another industry which has long been an important one in Somerset County is charcoal burning. Several thousand car-loads of this product are annually shipped out of the county.

In the eastern part of the county the Buckstown coal-field is now entering upon its development. This field is similar to that near the town of Somerset, and the same may be said of the Berlin coal-field which is already being extensively operated. South of Somerset, along the main line of the Baltimore & Ohio, there are numerous important mines. This part of the county is included in the Fifth Bituminous Coal District and the coal partakes much of the nature of the Fayette and Bedford county gas and steam coal. All the way from Fairhope to Ursina this coal development is in progress and many new mines are being opened up in this part of the county. A number of branch coal roads have lately been constructed or are now being built in the southern part of Somerset County.

Somerset has also quantities of fireclay, ganister rock, limestone and similar deposits and already a number of important clay-working industries have been established.



OTTUMWA LOADER AT THE LISTIE COAL MINES, SOMERSET, PA.

AMERICAN GAS-PIPE IN ENGLAND.—The Birmingham, England, "Post" says that in consequence of the high price of wrought iron tubes during the past year, the Birmingham Gas Committee were unable to accept the tenders of British makers, and had to seek supplies from America. The tubes imported were of superior quality, and have given general satisfaction. The effect of these purchases was ultimately to bring down the price of British-made tubes. It is, however, stated that it is still possible to secure Staffordshire tubes which have been exported and re-shipped to this country at a less cost than they could have been procured had they been ordered direct from the makers.

COAL IN BULGARIA.—Coal deposits to the north of the Balkan Range, near the small town of Trevna, in the Tirnovo prefectures of Bulgaria, have been known to exist for more than 30 years; and the Government tried, without success, to bring the coal in pack-saddles down to the Danube for firing steamship boilers, says the London "Colliery Guardian." So recently as three years ago it was believed that the coal, though of excellent quality, was only present in small quantity; but M. de Serres, who was the first to ascertain that the seams extend over a considerable area, obtained last year a concession of 500 hectares (1,235 acres) for 99 years. Now that he is deceased, the Societe d'Exploitation de la Concession Prince Boris, with a capital of 2,000,000 fr., has been founded in Brussels, having an administrative council in Paris. The company already employs 350 workmen, and will soon have a narrow-gauge line, 10 kms. long, for bringing down the coal.

BESSEMER STEEL PRODUCTION IN GREAT BRITAIN.

The statistics collected by the British Iron Trade Association for the year 1900 show that there was a decrease of 4.4 per cent. in the output of Bessemer steel for the year, as compared with 1899. The output was as follows, in long tons:

	1899.		1900.		Changes.
	Tons.	Per ct.	Tons.	Per ct.	Tons.
Acid	1,307,696	71.7	1,253,903	71.9	D. 53,793
Basic	517,378	28.3	491,101	78.1	D. 26,277
Totals	1,825,074	100.0	1,745,004	100.0	D. 80,070

Every district showed a diminished production in 1900, except West Cumberland. South Wales fell from 528,135 tons to 439,791 tons; Cleveland from 351,127 tons to 332,499 tons; Sheffield and Leeds from 329,886 to 328,934 tons; Lancashire and Cheshire from 214,119 tons to 174,680 tons; and Scotland, Staffordshire and Shropshire from 148,317 to 141,650 tons. The Bessemer process continues to produce in Great Britain a larger quantity of basic steel than the open-hearth. In all, six works are making basic steel by the Bessemer system, and more than one-half of the whole is produced in the Cleveland District, where two works carry on the process.

The number of Bessemer converters in the United Kingdom last year was 76, of which 14 were not in use, and 62 were at work. The average yearly output per converter was therefore 28,145 tons of steel.

The chief descriptions of finished Bessemer steel, which are reported to the Association were, in long tons:

	1899.	1900.	Changes.	Per ct.
Rails	838,148	759,814	D. 78,334	9.3
Plates and angles	158,878	96,108	D. 62,760	39.5
Sleepers	35,743	27,291	D. 8,452	23.5
Blooms and billets	355,335	280,220	D. 75,115	21.2
Bars	214,951	221,795	I. 6,844	3.2
Total	1,604,055	1,385,228	D. 218,827	13.6

The statistics of finished steel are not quite complete, a few establishments making no reports of their products. It will be seen that the decrease in finished products was most marked in rails, plates and angles.

THE NEEDLES SMELTER IN CALIFORNIA.

This new smelting plant, which is owned by the Needles Smelting Company, is located on the California side of the Colorado River at the point known as the Needles. The company informs us that the blast furnace is oval in shape, 36 by 96 in. at the tuyeres and is a continuous water-jacket from crucible to feed floor. The height from top of crucible to feed floor is 12 ft. The 12 tuyeres enter the furnace 24 in. above the botton of jacket (top of crucible) and a sectional iron bottom can be placed over the lead crucible, upon which the shallow crucible for copper smelting is built. In the case of oxidized copper ores the black copper is drawn off at a side opening and is cast directly into bars for shipment to the refinery.

In smelting sulphide ores of copper the resulting matte is separated from the slag in settlers or fore-hearths, one of which is placed in front of the furnace, and the matte is drawn off through an opening in the side of the fore-hearths into pots. The slag overflows continuously into pots and is clean enough to be discarded. These fore-hearths are 6 ft., 5 ft. and 4 ft. The lead crucible is mounted on a car which is movable on a T-rail track, connection being made with the jacket with firebrick, and the lead-well, built in the usual way, can be used for constant flow or intermittent tap, as desired. When the furnace is blown out the firebrick connection is broken, and the crucible can then be moved out from under the furnace and cleaned out very quickly. Instead of a long underground flue for collecting the flue dust, a condensing chamber is used. This is 10 ft. square, made of steel sheets and is divided into two rooms by a center partition. The fumes from the furnace are conveyed into the condenser through a downtake into the first chamber, where they pass through a spray of water which runs over deflecting sheets from perforated pipes above, then under the center partition and up through the water again and out through the stack. This arrangement collects the flue dust very effectively. The works are equipped with the usual appliances for sampling and handling ores.

As the furnace only began operations on March 8th, 1901, and as it has been treating quite a variety of different ores, it is too early to give details of method of charge calculation, fuel consumption, etc., which can be done better after a long campaign.

IRON AND STEEL PRODUCTION IN BELGIUM.

The official statistics, recently published, give the production of pig iron in Belgium for the full year as follows, in metric tons:

	1899.		1900.		Changes,
	Tons.	Per ct.	Tons.	Per ct.	Tons.
Foundry irons	84,165	8.2	88,460	8.7	I. 4,295
Forge irons	317,029	31.0	306,439	30.1	D. 10,590
Steel pig	623,382	60.8	623,608	61.2	I. 226
Totals	1,024,576	100.0	1,018,507	100.0	D. 6,069

Imports of pig iron were 305,628 tons and exports 8,282 tons. Adding the excess of imports—297,346 tons—to the production given above, we have a total of 1,315,853 tons as the approximate consumption. The output of pig iron last year exceeded that of all previous years except 1899 and 1897.

Belgium uses foreign iron ores largely. The total imported last year was 2,141,128 metric tons, 67,770 tons less than in 1899. The ore imported in 1900 included 1,324,572 tons (61.9 per cent.) from Luxemburg; 246,156 tons (11.5 per cent.) from France; 116,077 tons (5.4 per cent.) from Germany; 267,547 tons (12.5 per cent.) from Spain; the balance from other countries. It will be seen that 78.7 per cent. of the imports came from adjoining countries.

Belgium is one of the strongest adherents to the use of wrought or puddled iron, but the production last year showed a large falling off. The total output, in all forms, was 362,252 tons; a decrease of 112,946 tons, or 23.7 per cent., from 1899.

The production of steel ingots of all kinds in 1900 was 654,827 metric tons, against 731,249 tons in 1899; a decrease of 76,422 tons, or 10.5 per cent. The production of finished steel products of all kinds amounted to 564,056 tons, a decrease of 69,894 tons, or 11 per cent.

The consumption of finished iron and steel is estimated as follows: Production, 926,308 tons; imports, 89,226 tons; total supply, 1,015,534 tons. The exports were 511,909 tons, leaving 503,625 tons for home consumption.

GRAPHITE IN INDIA.—It is reported that a coal company in the Godavery District in India has discovered on its property a large deposit of graphite of good quality. It is to be worked on a large scale.

POPULATION OF GERMANY.—According to the latest German census returns the inhabitants of the Empire were employed in or dependent on the various industries as follows: Industries including mines, 20,253,241, or 39.12 per cent.; agriculture, 18,501,307, or 35.74 per cent.; trade and commerce, 5,966,846, or 11.52 per cent.; army and liberal professions, 2,835,014, or 5.48 per cent.; domestic service, 886,807, or 1.71 per cent.; unoccupied, 3,327,069, or 6.43 per cent. The German Empire covers 211,168 square miles.

PREPARATION OF FINE ORES.—For rendering fine-grained ore, or that which becomes finely divided when subjected to heat, suitable for treatment in the blast furnace, Herr Blezinger, of Duisburg, says the London "Colliery Guardian," proposes to mix it with coke siftings, and to feed in the mixture regularly and continuously at the top of an inclined revolving cylindrical oven, heated by a furnace underneath, so as to pass slowly down and make its way out at the lower end. During its passage through the oven the ore first gives up its moisture, and then runs together owing to the coke and the moderate heat, forming lumps of nearly equal size. The greater portion of the coke-dust enters into combustion with the oxygen of the iron compounds, and thus contributes to the heating of the oven, thereby effecting a saving in the fuel burnt on the grate.

TEXAS OIL SHIPMENTS.—The New York "Journal of Commerce," of recent date, says: "A shipment of 3,000 bbls. of crude oil from the new Texas oil-fields arrived in New York recently on the tank steamer 'Atlas,' consigned to the Standard Oil Company. This shipment is said to be for experimental purposes, and it is not the intention of the company to operate a regular tank-steamer service from Texas at present. The oil was shipped from Beaumont, Tex., and loaded into the tank steamer at Sabine Pass. The 'Atlas' left Sabine Pass on March 11th. There are only two tank steamers, the 'Atlas' and the 'Maverick,' operated by the Standard Oil Company under the American flag, so these are the only available boats, for the Texas oil traffic coming, as it does, under the head of domestic traffic. The company, however, has a number of tank barges of large capacity which may be towed by these steamers."

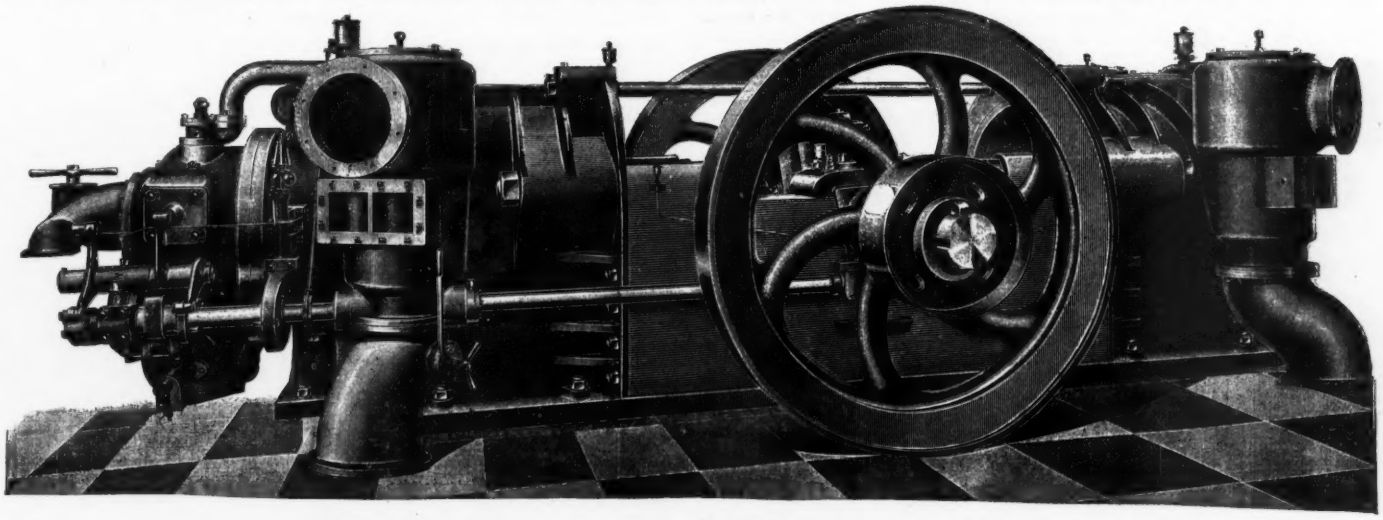
PACIFIC PEARLING INDUSTRY.—Much capital has been invested in this industry, while the returns in 10 years from 1889 to 1899, inclusive, amounted to $3,227,635, being the yield of 6,170 long tons of pearl shells that were gathered. In 1900 the West Australian Chief Inspector of Fisheries made a report of his visit to the Northwest Coast, where the pearling industry is carried on. The inspector found that of the 177 boats licensed under the Pearl Shell Fisheries Act, 159 luggers were employed with an average capacity of 10 tons, while the remainder were schooners of 30 tons and upward which were employed principally as store ships for provisions and shells. Each lugger carries a crew of 6 men, the diver being in charge. The schooners generally carry besides their own crew extra men in case of any sickness on board the luggers. It is approximated that about 1,000 adults are engaged in the pearling industry. The average annual wages paid to the crew of each lugger is about $1,100, exclusive of a $100 bonus to the diver for every ton of shell collected. The average cost of a lugger is about $2,750, delivered on the pearling ground completely fitted out with pump and diving gear, ready for work. The value of the entire fleet now afloat, including schooners, is roughly estimated at $375,000. The majority of the boats are employed within near reach of Roebuck Bay and Exmouth Gulf, while Broome, England, is the depot of the pearling fleet.

MINING DEVELOPMENTS IN NORWAY.—United States Consul-General Guenther sends an account condensed from the German, of a new harbor which is being constructed in the northern part of Norway, for the purpose of shipping iron ores from the mines of Swedish Lapland. The great iron mines of Gellivara and Luossavara have been developed to such an extent that better facilities for shipment of the ore have become an urgent necessity. The new harbor will be named Victoria Harbor, and its entire northern shore of more than half a mile will be used exclusively for the shipment of ore produced in the above-named mining districts. The Government of Norway has bought an extensive tract along the south side of the harbor. The harbor will be constructed after the plans similar to those used at Duluth, Minn. The total cost of the docks and buildings is estimated at $800,000; the cost of the docks proper, at about $650,000. The plans for the new city to be built there are nearly completed, many new houses are built and some streets laid out already. Of late, new iron deposits of enormous extent have been discovered in Lapland, and steps for developing them have been taken. Some of these claims have been bought by a Belgian company. Several English and German experts have lately been exploring this region for iron and other minerals, and important discoveries are said to have been made. The laws of Norway are very favorable for mining enterprises, as the discoverer of a mineral deposit on public lands is at once entitled to exploit it. All he has to do is to give notice of his discovery and have such notice registered.

AN ENGLISH GAS ENGINE FOR BLOWING.

The accompanying illustration, for which we are indebted to the London "Engineer," shows a gas blowing engine which has been made and is now being erected near Wolverhampton by Crossley Brothers, Limited, of Manchester. The gas-engine cylinders are placed on opposite sides of the crank shaft, and both connecting-rods lead on to the same crank pin. The cylinders are 31 in. diameter and 36 in. stroke, and the engine makes 130 revolutions per minute. The blowing cylinders are each 63 in. diameter and 36 in. stroke. They are placed in front of the gas-engine cylinders. Both pistons are coupled together, or, perhaps, to describe the arrangement more truly, the plunger of the gas-engine cylinder is carried forward, and is bolted to the blowing-cylinder piston. The air is compressed in the annular space thus formed between the back of the blowing-cylinder piston and the front of the gas-engine cylinder. The engine is to be driven by blast furnace gas.

The valves on the following cylinder, which are made under Atkinson's patent, consist of a number of steel rings, 21 in. diameter, placed one above the other, and seating themselves on cast iron seatings which are identical in form, and piled one on top of the other. There are 21 valves and rings in each of the four groups, two being for the suction and two for the delivery. The steel rings have a lift of 3/16 in. only, and the air can pass both on the inner and outer edges of the rings. Large valve area is thus provided, and the small lift of the valves makes them exceedingly prompt and quiet in action, and free from wear. The blowing cylinders deliver a total of 700,000 cu. ft. of free air per hour, and afterward compress it to 7 lbs. per square inch. By the removal of a cover and one central bolt, the valves and seatings can be readily taken apart for cleaning or examination; but, judging by the makers' long experience of the same type of valve, the necessity for this is not likely to occur frequently. Both the gas engine pistons and exhaust valves are cooled by passing water through them. The exhaust valves



GAS DRIVEN BLOWING ENGINE OF 500 H. P.

are also equilibrated by pistons almost of the same area as the valves, so that very little power is required to lift them, and the valve gear is relieved of heavy strains. The object kept in view in designing the engine was that it should be entirely self-contained, and suitable for placing upon foundations which, from the nature of the ground, might not be stable.

It may be added that, if necessary, this engine could work up to between 550 and 600 indicated horse-power, and its total weight, when fixed completed, will be about 105 tons.

THE HISTORY OF COPPER SMELTING IN THE LAKE SUPERIOR REGION.*

By James B. Cooper.

Of the first two attempts to smelt (not refine) copper in the Lake district I have found no published record. These were both made in Keweenaw County and Mr. John Senter has given me the following data regarding them: In 1846 a furnace was built on the Gratiot River, a short distance west of the present main road. Prof. James T. Hodge built and ran this furnace two very short campaigns. The selected rock, estimated to contain at least 20 per cent. copper, was the material smelted and the net result of the second run of this furnace was 3 to 5 per cent. copper. No further smelting was attempted after this disappointing result. The second furnace was built (probably in 1847) by the Suffolk Mining Company to smelt gray ore of copper. This furnace was located about 7 miles southeast of Eagle River. This ore was said to be so high in iron, and I surmise so low in copper, that it was impossible to smelt it in this furnace. In 1849 the Ohio & Isle Royale Mining Company built a furnace on Isle Royale which was never put in blast. The product of the lake copper mines had to be shipped to smelting works already established in Eastern States. Until late in 1848 probably all the lake copper was smelted by two works—the Revere Copper Works, of Boston, and the Baltimore (Md.) Works. During these years practically all the product of the lake copper mines consisted of mass and kiln copper, as the calcined barrel work was called.

*Abstract of paper read before the Lake Superior Mining Institute.

The mass was an entirely new proposition to the smelters as the entire world's product of copper, with small exceptions, had previously been made from the ores of copper. All refining furnaces had the small side door openings only for charging the ores or pigs of copper. At the Baltimore works a large side door opening was made and the masses were dragged into the furnace and through a door on the opposite side to a windlass. The larger door was bricked up after the charging of the furnace. The inevitable result of this method of charging the mass capper was serious damage to the furnace hearths, though they were protected as much as possible with ore and wooden skids.

In 1848 Dr. C. G. Hussey, of Pittsburg, one of the directors of the Cliff Mining Company, went to the Revere Works to make arrangements for the smelting of their product. It is said the price asked was $80 per ton for masses. This rate was so high that Hussey & Howe, of Pittsburg, decided to build smelting works. Their first experiment seems to have been made with the object of reducing masses to sizes small enough to charge easily into an ordinary side door refining furnace. They placed the mass in an ordinary cannon furnace of the Fort Pitt foundry, of Pittsburg, having first removed the arch or roof. This arch was then rebuilt and the copper tapped into sand beds. The slow heating and melting of this mass evidently made an excessive quantity of slag high in copper. It is also said they suspended a mass by chains in a blast furnace and attempted to melt it. Result, broken chain and a demolished furnace. However, in 1848, Hussey & Howe built a reverberatory refining furnace with a movable roof or cover; this cover being a little larger than the charging hole in the arch of the furnace. This became the universal method at all works smelting Lake copper. In 1850 J. G. Hussey & Company built copper smelting works at Cleveland. They evidently expected to smelt all the copper they could secure, but in the competition with the Detroit and Portage Lake works were not successful. Up to the time of closing this works in 1867 they had smelted very little except the product of the Cliff and National mines, in which Hussey, Howe & Company were heavily interested.

John R. Grout, the originator of the Detroit works, tried the experiment of smelting rich rock direct in a cupola. This trial was made in the small iron cupola of the Smith foundry at Birmingham, Oakland County, Mich., where the old inhabitants still remember the characteristic red color of the slag from the amygdaloid rock. Mr. Grout went to Waterbury, Conn., then, as now, one of the great copper consuming cities of the United States, and four of the largest brass manufacturing companies furnished the capital necessary to build a works consisting of one refining furnace and one cupola for reduction of the slags. These brass companies had had serious trouble to buy copper that was even in quality and equal to their requirements in alloys or in sheet copper where great tensile strength and elasticity were demanded. The principal object of these companies in starting the works was to secure a brand of copper on which they could always depend. This smelting company was called the Waterbury & Detroit Copper Company and the Detroit works were completed and a small quantity (about 150 tons) of copper was refined in the fall of 1850. In 1860 the Portage Lake Smelting Works was built directly opposite Houghton under the supervision of the Messrs. Williams. At this works they began refining copper early in 1861. It was well patronized by the local mines. The product of the Calumet & Hecla mines was sent to this works. They built one stack on the hill side back of the works and four of the refining furnaces were connected to this by an underground flue.

In July, 1867, the Portage Lake Works with its better central location in the mining district, and the Detroit Works, with its prestige as to brand of copper, were consolidated as the Detroit & Lake Superior Copper Company, with Mr. Grout as general manager. Between 1860-67 two small works were built, one at Lac-La-Belle, Keweenaw County, by one of the Messrs. Williams. The second was built by a Major Pont Alba at Ontonagon, and from about 1863 to 1867 was in commission. From 1867 to 1887 the consolidated company refined the entire product of Lake copper except a small amount smelted by the Houghton rolling mills (the Lake Superior Native Copper Works), whose one refining plant and cupola were put in commission in 1882. The mineral smelted at this works was almost entirely from small mines controlled by the owners of the rolling mills. In 1886 the Calumet & Hecla smelting works at South Lake Linden, owned jointly by the Detroit & Lake Superior Copper Company and the Calumet & Hecla Mining Company,

was built and smelting at this works began June 1st, 1887. The Detroit works were closed finally in January, 1887. In 1888, the Dollar Bay Smelting Works were built by the Tamarack-Osceola Manufacturing Company and smelted copper of the Tamarack, Osceola and other mines controlled by the same management. These were consolidated with the Houghton works of the Detroit & Lake Superior Copper Company in August, 1890, as the Lake Superior Smelting Company. In 1891 the Calumet & Hecla Company built the Buffalo Smelting Works, where, since 1892, a large part of its product has been smelted. In May, 1898, the Tamarack and Osceola Mining companies bought the Lake Superior Smelting Company's works, but continuing to do custom smelting for other mines of the district. In this same month of May, 1898, the Quincy Mining Company began the erection of its own smelting works on the stamp sands of the old Pewabic mill.

ABSTRACTS OF OFFICIAL REPORTS.

Centennial Copper Mining Company, Michigan.

This company's report covers the year ending December 31st, 1900; it is dated April 2d, 1901. The treasurer's statement shows assets as follows: Cash at mine and in Boston, $179,734; copper (since sold) and balance of December installment, $55,290; bills receivable at mine, $2,-156; supplies on hand at mine, $21,856; total, $259,036. The liabilities were the indebtedness at mine, amounting to $16,042; leaving a balance on hand of $242,994.

The directors' report says: "In the assessment circular which was sent to all stockholders in November last, the ground was so fully covered by information usually contained in an annual report—both as to the condition of the mine above and below ground and the future plans—that your directors find little to add at this time. Shaft A on the Kearsarge Lode has nearly reached the southeast corner of Section 12, and after passing through into the square mile of the original Centennial property the levels will rapidly lengthen, both to the north and the south. B shaft is already opened several hundred feet underground, and will be completed at least to the sixth level by the time we have reached the ledge with a shaft from the surface, which will be started down through the sand as soon as the snow is gone. Each of these shafts can be sunk to a depth of about 10,000 ft. on the lode. The underground work has been pushed with great vigor, more than 7,000 ft. of new ground having been opened during the year. The quality of the rock, we are encouraged to find, continues to improve with depth, as indicated by the mill returns, which show a gratifying increase over last year's figures. In order to operate these two large modern three-compartment shafts in a generous and economical manner, we found (as stated in the circular above referred to) that a more extensive equipment would be required than at first thought necessary, but we believe that any expenditures along this line will be found to have been wise on account of the increased efficiency in the future operation of the plant. As soon as the weather will permit it is our purpose to begin preliminary work at the millsite on Torch Lake, as it is expected that permanent plans will be ready by that time. The treasurer's statement shows a balance of over $240,000. This will be increased during April by the second installment of the assessment levied last November, $2 being payable April 12th on the outstanding 90,000 shares."

United Alkali Company, Limited.

In the year ended December 31st, 1900, which is the tenth of the company's existence, trade in its manufactures has been fairly satisfactory considering that the company has practically lost both the Russian and United States markets for alkalies, owing to prohibitory tariffs. On the other hand, the growing manufacture of chemicals of all kinds, mainly by electrolytic methods, in foreign countries, has created much competition and is keeping prices down to a level which leaves little profit. Moreover, dearer materials for manufacturing purposes resulted in an expenditure of £260,000 ($1,300,000), of which £150,000 ($750,000) went for fuel alone for the different plants of the company. In the year 1901 this expenditure will probably be less, as market prices of fuel and raw materials are receding.

The company is constantly improving its methods of manufacture and practices economy wherever possible. New articles are also being made, and in the past year, cyanide, acetic acid and acetone have all shown good results. At the Cheshire property two new wells have been sunk, and an excellent supply of fully saturated brine proved further operations have been suspended, a contract with the Salt Union for our present consumption of salt having been made.

The works of the North American Chemical Company, in Michigan, have been in regular operation all the year, and though earning profits have not yet attained to such results as the directors consider they should, and will, presently yield. No profit from this source is included in the United Alkali Company's accounts for 1900, the balance of profit, after depreciation, having been carried forward in the books of the American Company. The North American Chemical Company has opened a new colliery which assures it supplies of fuel at moderate rates.

The disastrous fire leading to an explosion at the Kurtz Works, St. Helens, in May, 1899, has resulted in a suit against the company by the St. Helen's Corporation, for £4,000 ($20,000) as damage to a gasholder. The verdict of the Liverpool December Assizes was given against the United Alkali Company. An appeal has been taken, as expert examination had shown that the company was not to blame.

The commercial arrangements which existed between this company and Messrs. Bowman, Thompson & Company, Limited, and Messrs. Brunner, Mond & Company, came to an end on December 31st, 1900. The works and business of Messrs. Bowman, Thompson & Company, Limited, have been acquired by Messrs. Brunner, Mond & Company, Limited, with whom the United Alkali Company remains in friendly relations.

The company's share capital and debenture stock are unchanged. The debts owing by the company amount to £325,340 ($1,626,700), which is £20,000 or $100,000 more than 1899, owing to the increased price of supplies. The reserve fund, after deducting £650,000 ($3,250,000) as depreciation on property and plant account, amounts to £57,781 ($288,-905) on December 31st, 1900. There is due bankers £119,576 ($597,880), as the company had to spend money out of working capital in carrying on its manufacturing interests.

The additions to property, plant, freehold, etc., to December 31st, 1900, amounted to £121,732 ($608,660). Deducting £11,816 ($59,080) realized from the sale of property and plant, including the amount written off for depreciation, leaves the account at £7,307 ($36,535), as against £7,197 ($35,985) in 1899. The stocks of manufactured products, raw materials, stores, etc., are valued at £885,864 ($4,429,320), or about £73,488 ($367,440) more than 1899. The debts owing to the company, with the outstanding consignments, amount to £383,013 ($1,-915,065), or £34,625 ($173,125) more than 1899. Investments, general and in other companies, stand at £357,819 ($1,789,095), or £8,116 ($40,-580) more than 1899. Cash in hand, with bills receivable, amounts to £8,249 ($41,245). The gross profit, including interest on investments and transfer fees, amounts to £405,499 ($2,027,245), or £25,234 ($126,170) more than 1899. The net profit, after payment of debenture interest and all other charges, is £212,001 ($1,060,005), which is an increase of £13,235 ($66,175) as compared with 1899. Dividends aggregating £188,-701 ($943,505), or 7 per cent., were declared on the preferred stock for the year 1900, leaving the amount to be carried forward £60,163 ($300,-815), or £23,299 ($116,495) more than was booked from 1899.

As regards the prospects for 1901, it is stated that there is a considerable restriction in the trade so far for this year. It is believed, however, that the company will do better than 1900 on the whole with regard to the cost of raw materials, and as the year advances demand for chemicals, etc., will improve.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

MEANING OF THE WORD "CREVICE."—Under laws of Colorado (2 Mills' Annual Statute, Section 152) providing that before filing a mining claim location the discoverer shall locate his claim by sinking a discovery shaft on the lode to the depth of 10 ft. at least from the lowest part of the rim on such shaft at the surface, or deeper if necessary to show a well-defined crevice, the term crevice means a mineral bearing vein.—Beals vs. Cone (62 Pacific Reporter, 948); Supreme Court of Colorado.

"WHERE CORNER FALLS ON DANGEROUS GROUND."—Under a statute (2 Mills' Annual Statute, Section 3153) providing that where one or more posts must be erected to mark the surface boundaries of a mining claim "fall by right on precipitous ground, where the proper placing of it is impracticable or dangerous to life or limb," it shall be proper to place such posts at the nearest practicable point. The corner of a mining claim fell on the top of a railroad embankment 12 or 15 ft. in height. It was held that such point was not an impracticable or dangerous one, within the meaning of the statute; and a post set away from the true corner and marked "W.C.4-9005" did not indicate by either course or distance where the true corner was to be found.—Beals vs. Cone (62 Pacific Reporter, 950); Supreme Court of Colorado.

DISCOVERY SHAFT MUST EXPOSE VEIN IN COLORADO.—Under the laws of the United States (Revised Statutes, section 2320), providing that a location of a mining claim shall not be valid until a mineral bearing vein has been discovered, and the laws of Colorado (2 Mills' Annual Statutes, 3152), providing that before filling a location for a mining claim the discoverer shall locate his claim by sinking a shaft on the lode to the depth of at least 10 ft. from the lowest part of the rim on such shaft at the surface, the shaft so dug must expose the vein on which the location is based, and it is not sufficient that a discovery is made of some other vein within the limits of the claim.

A. filed his certificate of location in May, 1892, but did not make a discovery until April, 1894, at which time he relocated the premises. Before such discovery, another made a discovery and located the claim. The court held that the discovery by A would not relate back to the time of the filing of the original location, so as to cut out intervening rights, and hence such original certificate of location was not admissible in evidence against the other party.—Beals vs. Cone (62 Pacific Reporter, 949); Supreme Court of Colorado.

LIENS ON MINING PROPERTY IN NEW MEXICO.—Where a co-owner of a mining claim authorizes his co-owner and others to place machinery upon their claims and to do mining on same, and the foreman in charge of such mining operations employs laborers to work upon such claims, who perform labor on same, of which facts such co-owners have notice, and fail to post the notice required by section 2226, Compilation Laws of New Mexico 1897, specifying that they will not be responsible for the work, such laborers are entitled to a lien upon the entire claim or claims, and may file and foreclose a lien for the value of the labor performed on same. Under such circumstances, the foreman in charge is the agent of the owners, under section 2217, of said laws, providing that the person in charge shall be the agent of the owner for the enforcement of the lien law, notwithstanding such foreman was employed by one of the co-owners. Section 2222 of said laws provides that persons filing claims against two or more buildings or mining claims owned by the same person must designate the amount due on each, and that otherwise the lien shall be postponed to other liens. It was held, that a lien filed against several mining claims is not void because the amounts against each claim are not segregated in the lien, but, where other liens exist at the time, is merely postponed.—Post vs. Fleming (62 Pacific Reporter, 1087); Supreme Court New Mexico.

SIZES OF WIRE CLOTH.

Written for the Engineering and Mining Journal.

In referring to wire cloth for screening purposes the custom is to state the number of meshes per linear inch, but inasmuch as wire of various diameter is employed in making cloth of a certain number of meshes per linear inch, the character of the cloth cannot be determined unless the number of the wire from which it is woven be specified. It is important to specify the number of the wire because, for example, a 24-mesh screen woven with fine wire may have larger apertures than a 20-mesh screen woven with coarse wire. There used to be a good deal of confusion with respect to wire cloth, owing to the different wire gauges employed by different manufacturers. This difficulty has, however, been happily obviated during the last two years, the Wire Cloth Manufacturers' Association having adopted on March 7th, 1899, the Washburn & Moen, or Worcester, gauge as the standard of all iron or steel wire cloth and the old English gauge as the standard for all brass or copper wire cloth. These gauges are to be found in almost any of the engineers' pocketbooks and from them the diameter of the apertures in a wire cloth of any mesh can be calculated readily if the number of the wire from which it is woven be specified. The mesh in wire cloth is always the number of openings in a linear inch measuring from center to center of wire. A linear inch will comprise, therefore, the same number of apertures and wires. Multiplying the diameter of a single wire in decimals of an inch by the number of wires in a linear inch, subtracting the product from unity and dividing the remainder by the number of meshes per linear inch, will give the diameter of each aperture in decimals of an inch.

Steel wire cloth is made in great variety for all meshes except the finest. No. 1 mesh wire cloth is woven with wire from No. 3 to No. 15; No. ¾ mesh from No. 4 to No. 16; No. ⅝ mesh from No. 5 to No. 17; No. 2 mesh from No. 6 to No. 18; No. 2½ mesh from No. 8 to No. 19; No. 3 mesh from No. 10 to No. 20; No. 3½ mesh from No. 11 to No. 21; No. 4 mesh from No. 11 to No. 22; No. 4½ mesh from No. 12 to No. 23; No. 5 mesh from No. 13 to No. 24; No. 6 mesh from No. 14 to No. 25; No. 7 mesh from No. 15 to No. 26; No. 8 mesh from No. 16 to No. 27; No. 9 mesh from No. 17 to No. 28; No. 10 mesh from No. 18 to No. 29; No. 12 mesh from No. 19 to No. 30; No. 14 mesh from No. 20 to No. 34; No. 16 mesh from No. 21 to No. 35; No. 18 mesh from No. 22 to No. 36; No. 20 mesh from No. 23 to No. 36; No. 22 mesh from No. 24 to No. 36; No. 24 mesh from No. 25 to No. 36; No. 26 mesh from No. 26 to No. 36; No. 28 mesh from No. 27 to No. 36; No. 30 mesh from No. 28 to No. 36; No 35 mesh from No. 29 to No. 36; No. 40 mesh from No. 31 to No. 37; No. 45 mesh from No. 33 to No. 37; No. 50 mesh from No. 34 to No. 38; No. 55 mesh from No. 35 to No. 38; No. 60 mesh from No. 35 to No. 39; No. 64 and No. 70 mesh from No. 37 to No. 39; No. 74 mesh from No. 39 and No. 40; No. 80 mesh from No. 40 and No. 42; No. 90 mesh from No. 42. The number of the wire and the diameter of the apertures in inches and millimeters of the regular heavy grade iron or steel mining wire cloth are given in the following table:

Regular Sizes of Wire Cloth.

(The mesh in wire cloth is the distance from the center to the center of wire.)

Mesh.	Wire No.	Diam. of wire. Inches.	Diam. of aperture. Inches.	Equivalent in millimeters.
1	3	.2437	.7563	19.81
¾	4	.2253	.5247	13.33
⅝	5	.2070	.4180	10.62
2	8	.1620	.3380	8.59
2½	9	.1483	.2517	6.39
3	10	.1350	.1983	5.04
3½	11	.1205	.1652	4.20
4	12	.1055	.1445	3.67
4½	13	.0915	.1307	3.32
5	13	.0915	.1085	2.76
6	14	.0800	.0867	2.20
7	15	.0720	.0709	1.80
8	16	.0625	.0625	1.59
9	17	.0540	.0571	1.45
10	18	.0475	.0525	1.33
12	19	.0410	.0423	1.07
14	20	.0348	.0366	.93
16	22	.0286	.0339	.86
18	23	.0258	.0298	.76
20	24	.0230	.0270	.69
22	25	.0204	.0251	.64
24	26	.0181	.0236	.60
30	28	.0162	.0171	.43
40	31	.0132	.0118	.30
50	34	.0104	.0096	.24
60	36	.0090	.0077	.20
64	37	.0085	.0071	.18
70	38	.0080	.0063	.16
74	39	.0075	.0060	.15
80	40	.0070	.0055	.14
90	42	.0062	.0041	.10

A roll of wire cloth is always understood to be 100 linear feet. Any width can be obtained to order. Prices are quoted per square foot.

ROCK FORMATION.*

By W. Spring.

The author carried out experiments to determine whether under the influence of great pressure solid particles, which do not under ordinary circumstances unite, might be made to cohere. The pressure used in the experiments was about 10,000 atmospheres, and this pressure could be exerted if necessary at a temperature as high as 400°. All bodies which are plastic under pressure were found to cohere as if they had been fused, while those substances which are not malleable remained in a powder after exposure to the greatest pressures. Thus sand, calcium carbonate, alumina and oxide of iron did not cohere, and since the pressure used corresponds to a column of sand 50 km. in height, pressure alone cannot be the cause of the formation of rocks from these materials. Metallic powders, on the other hand, cohere perfectly, which must be due to a kind of solid solution. That this is probable is shown by using mixtures of different metals, in which case alloys are formed as perfectly as by fusion. Those metals, however, which do not alloy by fusion, as lead and zinc, will not allow under pressure. Compounds were readily formed by pressure in those instances wnere the volume of the compound is less than that of its constitutent elements, as with silver and sulphur; on the other hand, compounds which occupy more space than their constituents were dissociated by pressure. In those cases where solution is accompanied by contraction, the presence of water was found to greatly assist in the formation of solid masses from the powders, and solid carbonates were readily formed. A solution of silicic acid alone did not cause agglutination of sand, owing to the great contraction on drying, but when combined with even low pressure, solidification to a considerable extent was obtained. All these influences have played a part in rock formation.

*Abstract in "Science" of article in the "Revue Generale des Sciences."

THE MINERAL PRODUCTION OF GERMANY.

The coal production of Germany for the year 1900 is given by the preliminary reports of the Government as below, in metric tons:

	1899.	1900.	Changes.	Per ct.
Coal	101,639,753	109,271,726	I. 7,631,973	7.4
Brown coal	34,204,666	40,279,332	I. 6,074,666	17.5
Totals	135,844,419	149,551,058	I. 13,706,639	10.1

The very considerable increase in brown coal was due to the opening of new mines and the more active working of old ones. Besides home sales, there was a considerable demand for export to Austria during the strike of the miners in that country.

The production of metallic ores in Germany and Luxembourg is reported as below, in metric tons:

	1899.	1900.	Changes.	Per ct.
Iron ores	17,989,635	18,964,367	I. 974,732	5.4
Copper ores	733,619	774,775	I. 41,156	5.6
Zinc ores	664,356	639,215	D. 25,141	3.8
Lead ores	144,370	148,230	D. 3,860	2.7

The total production of pig iron as given by the official statement was 8,494,852 tons, against 8,117,596 tons in 1900; an increase of 377,256 tons, or 4.6 per cent. As usual, these figures differ slightly from those given out by the German Iron-Masters' Association. The production of wrought in finished forms—bars, plates, etc.—was 929,832 tons. against 1,103,665 tons in 1900, showing a decrease of 173,833 tons, or 15.7 per cent., from 1900. Steel production, on the other hand, showed an increase, though only a small one. The total output of steel in all finished forms—as rails, plates, bars, shapes, structural material, etc.—was 4,799,196 tons in 1900, while in 1899 it was 4,793,523 tons. The increase last year was 5,673 tons, or 0.1 per cent. only.

The output of mineral products of minor importance was, in metric tons:

	1899.	1900.	Changes.
Graphite	5,196	9,248	I. 4,052
Asphalt	74,770	89,685	I. 14,915
Petroleum	27,027	50,375	I. 23,348
Rock-salt	861,123	927,784	I. 66,661
Kainit	1,108,159	1,178,527	I. 70,368
Other potassium salts	1,384,972	1,874,346	I. 489,374
Magnesia salts	2,032	1,754	D. 278
Boracite	183	232	I. 49
Silver and gold ore	13,506	12,537	D. 969
Tin ore	72	81	I. 9
Cobalt, nickel and bismuth ores	1,270	4,495	I. 3,227
Uranium and tungsten ore	50	43	D. 7
Manganese ore	61,329	59,203	D. 2,126
Arsenic ore	3,834	4,380	I. 546
Pyrites	144,623	169,447	I. 24,824
Alunite and alumina sulphate	533	350	D. 183

It will be seen that there was an increase in almost all the mineral products. This was especially marked in the group of potash salts, of which Germany has at present a practical monopoly.

WIRELESS-TELEGRAPHY SIGNALS FOR VESSELS.—United States Consul-General Guenther, of Frankfort, on February 23d, 1901, writes that an automatic system of signals for the purpose of warning vessels in stormy weather against the proximity of reefs and rocks has been exhibited to German marine experts. The automatic part of the apparatus is said to consist of a wheel with a number of cogs arranged at suitable intervals, which slide over a Morse apparatus. The latter is connected with a ladder placed vertically on rising ground on shore or on a lighthouse. The electric waves emanating are taken up by receiving apparatus on vessels having such within a radius of 7 miles. A bell sounds and the receiver notes the spot against which vessels should be warned.

SINKING PETROLEUM WELLS IN MEXICO.—United States Consul S. E. Magill, at Tampa, Mexico, writes that for many years it has been believed by experts that petroleum existed in Mexico, especially along the Gulf Coast, and several parties in years past have drilled near Tampico in the hope of finding it; but no really determined effort has been made until quite recently, and owners of land are awaiting the results of that effort with much anxiety. The chief indication of the existence of oil is the numerous wells of asphalt. Eastern oil men have passed by this territory, as the surface indications were not good, according to their experience in the Eastern fields, and also on the result of the above-mentioned experiments; so it remained for California parties to detect the possibilities here from the similarity in the surface indications between California and this part of Mexico. They have emphasized their belief by purchasing large tracts of lands, building houses, and ordering machinery, preparatory to sinking experimental wells. Other interests have also secured favorable leases. In addition to the foregoing preparations in the vicinity of Tampico, there is an English company operating south of that place in the State of Vera Cruz, the results of which are as yet not known. It is the general opinion that if oil is found in paying quantities it will be similar to the California product—unprofitable to refine, but good for fuel. As coal is expensive and wood is becoming scarcer each year, fuel oil will find a ready market, even if found in large quantities.

ELECTRIC HAULAGE IN MINES IN EUROPE.

Written for the Engineering and Mining Journal by Frank C. Perkins.

Electrical Hoists.—The transporting and hoisting apparatus used in mines is essentially very important, and requires practical, economical and reliable operation. The least break or mistake in the raising of materials and men through the main shaft may mean a great loss of life and valuable property. The hoisting and transporting apparatus of a great mine may be divided into three general classes. First, small machines for transferring material from the smaller passages to the larger galleries. Such a machine driven by a direct-current motor is a chain windlass operating in the Kaliwerken Aschersleben. It is an old type of apparatus and belt driving is used, while the latest machines are direct connected and are frequently operated by polyphase motors. A later type is operated by a Drehstrom motor in the coal mine of Steinkolhenbauverein Gottessegen at Lugan. It is a 10 H. P. Siemens & Halske machine operating at a pressure of 500 volts.

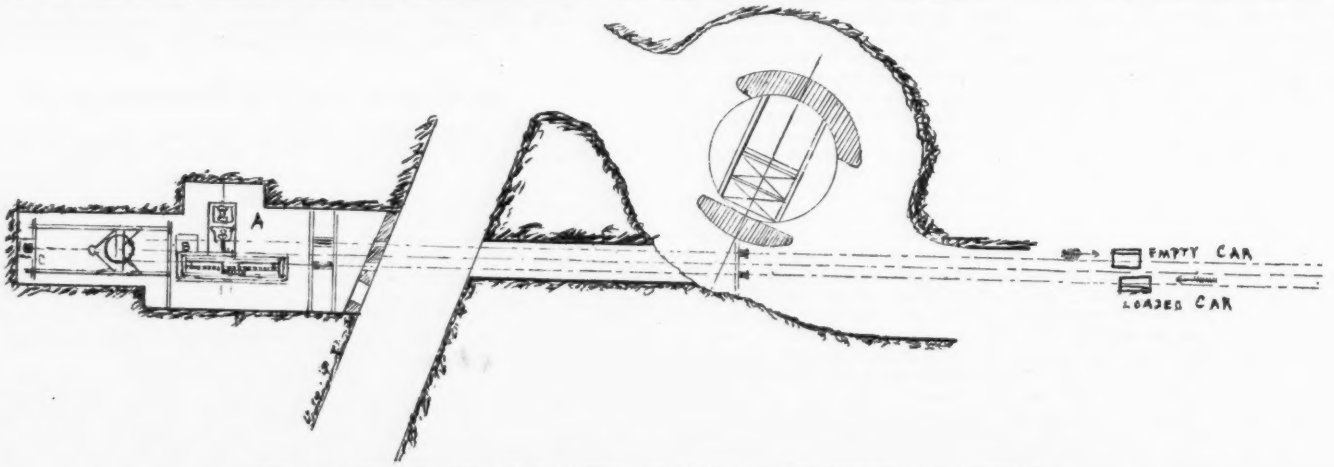


Fig. 1.—Electric Rope Drive, Hoist and Shaft at Wilhelmshalle, Germany.

The second class of hoisting apparatus is that used for conveying the material through the main passages to the bottom of the main shaft. Examples of this class of apparatus are seen in diagram Fig. 1, which shows the arrangement of the hoisting apparatus, shaft, passages and direction of loaded and empty cars in the mine at Wilhelmshalle. The direct current electric motor is seen at A coupled to the rope driving machine. The starting rheostat is indicated at B, while C represents the counterbalancing weight.

A similar rope drive electrical hauling apparatus is used at the Kaliwerken Aschersleben. This is also an old type of machine, but gives an excellent idea of the method of transporting the material through the passages.

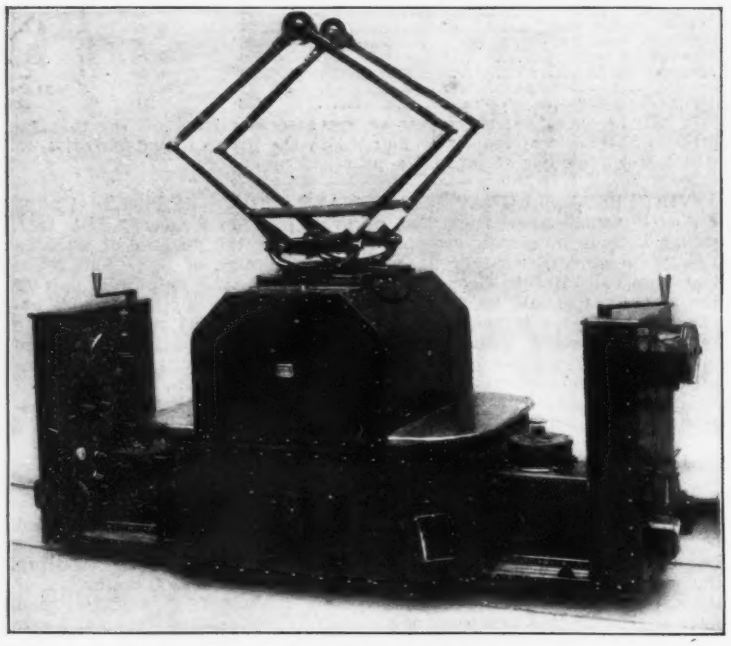


Fig. 3.—Siemens-Halske Electric Locomotive.

A different type of construction having a belt-driven machine and a vertically geared shaft is installed at the mine of the Berwerks-Aktiengesellschaft Courl near Hamm. A Drehstrom motor is used, having a capacity of 25 H. P.

The third class of hoisting machines used in mines is that for raising the material through the main shaft to the ground level. This is usually accomplished by very large and strongly built apparatus installed in a substantial building at the top of the main shaft above ground, although in some instances it is placed underground. Such a main shaft hoisting machine, operated by a 25 H. P. motor, is installed at the mine at Courl in Westphalia.

Mining Locomotives.—Probably no electrically operated machine is more appreciated in any mine than the locomotive used for the hauling loaded cars through the many passages. A Siemens & Halske type locomotive which has given good service for a number of years in shown in Fig. 2, and later types have been recently introduced, one of which is seen in Fig. 3. Two of the latest types of electric locomotives in use in Germany are of American manufacture. They are respectively of the Baldwin-Westinghouse and the Jeffrey types, both of which have been illustrated in our columns.

The motor shown in Fig. 2 has been operating successfully a long time at Salzbergwerk Neustassfurt near Stassfurt. The mining locomotive seen in Fig. 3 is used on gauges from 450 mm. upward.

UTILIZING WATER POWER BY DIRECT AIR COMPRESSION.*

By William O. Webber.

Air compressed by the ordinary methods of mechanical compression contains at least the same amount of moisture as the surrounding atmosphere from which it was compressed; and, in parting with the heat necessarily contributed to the air by the mechanical compression, it is inclined to absorb more moisture. There is incidentally a considerable loss of energy in parting with this heat. Air compressed directly by falling water is kept at the same temperature as this water. It is compressed isothermally, and the consequent expansion, when used in motors, produces an almost truly adiabatic expansion line. Tests, however, have shown that air compressed in this manner contains only one-sixth of the moisture originally in the surrounding atmosphere from which it is compressed. This is probably because the moisture in the bubble of air is pressed or squeezed out to its surface and then absorbed by the surrounding water. Incidentally there is no loss of power in parting with any heat, and there is a practical result which is of more importance—the hydraulically compressed air can be expanded down to a temperature much below the freezing point, while atmospheric air, with the usual amount of moisture, mechanically compressed, cannot be used at all, owing to the freezing up of the exhaust passages of the motor in which the attempt to use it is being made.

During some tests made at Magog in September, 1899, owing to the conditions under which these tests were made, the change in the humidity in the air was not so great as above stated. The moisture in the external air showed 90 per cent. of saturation, and, after compression, 29 per cent., or a little more than one-quarter. In the Magog tests, using an old 75-H. P. Corliss engine, with air at 53½ lbs. gauge pressure, with cold air direct from the compressor at from 66° to 73°, and exhausting down to the extremely low point of 42° below zero, 850 cu. ft. of air per brake horse-power per hour were used; and, with the air pre-heated to from 205° to 295° Fahrenheit, and exhausting at from 67° to 68°, 620 cu. ft. of air per brake horse-power per hour were used.

Probably one of the oldest applications of the use of water power to the wants of man was a form of hydraulic air compressor which operated as an entrainment apparatus. This was the well-known water bellows or trompe of the Catalan forges.

This apparatus, briefly described, consisted of a bamboo pole, disposed at a slight inclination from the perpendicular, into the upper end of which a stream of water was led, entraining air with it in its downward passage. The lower end of this bamboo pole was introduced into a bag made of the skin of some animals, the air being allowed to escape from the water into the upper part of the bag, whence it was led by pipes or tuyeres to the forge, the water being allowed to escape from the lower edge of the bag. From this original device a great many improvements have been worked out, and besides this a number of other forms of hydraulic air compressors, or of compressors using other liquids for compressing air or other gases, have been designed.

Siemens invented an apparatus on the principle of the steam injector, but the use of this was confined principally to the production of a

*Abstract of paper read before the Boston Society of Civil Engineers, and published in the "Journal" of the Association of Engineering Societies.

vacuum. It is used to operate the pneumatic dispatch tubes in London. It has also been used for blast purposes in Siemens' furnaces and in sugar works.

A number of methods for compressing air by the direct pressure of water have been devised and some of them patented. The paper describes a number of these, coming finally to the Taylor compressor, which is now in practical use; of this the author says that United States patents on apparatus of this type were issued to Charles H. Taylor, Nos. 543,410, 543,411, 543,412, July 23d, 1895. His inventions consisted principally of a down-flow passage having an enlarged chamber at the bottom and an enlarged tank at the top. A series of small air pipes projected into the mouth of the water inlet from the large chamber at the upper end of the vertically descending passage, so as to cause a number of small jets of air to be entrained by the water, Taylor seemingly having been the first to introduce the plan of dividing the air inlets into a multiplicity of small apertures evenly distributed over the area of the water inlet. The Taylor compressor was described in the "Engineering and Mining Journal" December 26th, 1896, page 606.

Taylor at first seems to have attempted to utilize centrifugal action in causing the separation of the air from the water in the larger chamber at the bottom of the compressed column; but he afterward abandoned this scheme and used, instead, deflector plates in combination with a gradually enlarging section of the lower end of the down-flow column in order to decrease the velocity of the air and water and cause partial separation to take place. The deflector plates changed the direction of flow of the water. This was evidently intended to facilitate the escape of the air.

The latter improvements on this device have been in the method of introducing the air into the mouth of the downwardly flowing water column, so as to insure the largest proportion of air being taken down with the water, and in methods of decreasing the velocity of the combined air and water at the bottom of the descending column, causing the water to part more readily with the air, the water then passing out at the bottom of the enlarged chamber into an ascending shaft, maintaining upon the air a pressure due to the height of water in the uptake, the air being led off from the top of the enlarged chamber by means of a pipe.

The first of these compressors on the Taylor principle was installed at Magog, Quebec, to furnish power for the print works of the Dominion Cotton Mills Company. The head of water is 22 ft.; the down-flow pipe is 44 in. in diameter, and extends downward through a vertical shaft 10 sq. ft. in cross section and 128 ft. deep. At the bottom of the shaft the compressor pipe enters a large tank, 17 ft. in diameter and 10 ft. high, which is known as the air chamber and separator.

A series of very careful tests on this plant demonstrated that with 19.5 ft. head, using 4,292 cu. ft. of water per minute, was recovered the equivalent to 1,148 cu. ft. of free air per minute, which would represent 248 cu. ft. of air per minute compressed to 53.3 lbs. pressure, showing that out of a gross water horse-power of 158.1 a total of 111.7 H. P. of effective work in compressing air was accomplished, giving therefore an efficiency of 71 per cent. In the tests at Magog there was recovered 81 H. P., using an old Corliss engine without any changes in the valve gear as a motor; this would represent a total efficiency of work, recovered from the falling water, of 51.2 per cent.

When the compressed air was pre-heated to 267° F. before being used in the engine, 111 H. P. was recovered, using 115 lbs. coke per hour, which would equal about 23 H. P. The efficiency of work recovered from the falling water and the fuel burned would be, therefore, about 61½ per cent. On the basis of Professor Riedler's experiments, requiring only 425 cu. ft. of air per brake horse power per hour, when preheated to 300° F. and used in a hot-air jacketed cylinder, the total efficiency secured would have been about 87½ per cent.

The second compressor on the Taylor principle is located on Coffee Creek, to the south of Ainsworth, British Columbia. The available head of water is 107.5 ft. The down-flow pipe is 33 in. in diameter. The shaft is 32 sq. ft. area and 210 ft. deep. The maximum volume of water is 4,200 cu. ft. per minute and would represent, at 71 per cent. efficiency, 587 H. P. This compressor is expected to utilize about 5,100 cu. ft. of free air per minute or 734 cu. ft. of compressed air at 87 lbs. pressure, and give an air motor horse-power of 360 H. P. It is possible, however, that this plant may not give as high percentages as this, as the water passages are of small areas than those at Magog.

Three other plants are now under construction—one at Peterborough, Ontario; one at Norwich, Conn., and one in the Cascade Range, Washington. The plant at Peterborough, Ontario, for the Government of the Dominion of Canada, is to be used in connection with one of the locks on the Trent Valley Canal, the chief dimensions being as follows: Head of water, 14 ft.; gauge pressure, 25 lbs.; diameter of compressor pipe, 18 in.; diameter of shaft, 42 in.; depth below tailrace, 64 ft. The whole plant is inclosed in the masonry wall of the lock, the usual rock chamber in the bottom of the shaft being built in concrete and only a few feet below the lower water level of the lock.

FIG. 2.—ELECTRIC LOCOMOTIVE AT STASSFURT SALT MINES, GERMANY.

At Norwich, Conn., at what is known as the Tunnel Privilege on the Quinebaug River, the plant will give 1,365 H. P. of air at a pressure of 85 lbs. per square inch. The head of water is 18½ ft.; diameter of shaft, 24 ft.; diameter of compressor pipe, 13 ft.; depth of the shaft, 208 ft. The air will be transmitted a distance of 4 miles with a loss in transmission not exceeding 2 per cent., through 16-in. pipe. which will be laid with flanged joints and rubber gaskets.

The plant which is being constructed in one of the canyons of the Cascade Range of mountains in the State of Washington will give 200 H. P. of air at a pressure of 85 lbs. per square inch. Head of water, 45 ft. There is no shaft, as the apparatus is constructed against the vertical walls of the canyon. The diameter of the compressor pipe is 3 ft. The diameter of the up-flow pipe is 4 ft. 9½ in. The capacity of the plant is based on 2,000 miners' inches of water, equal to 53.2 cu. ft. per second. The total height of this apparatus is about 260 ft.

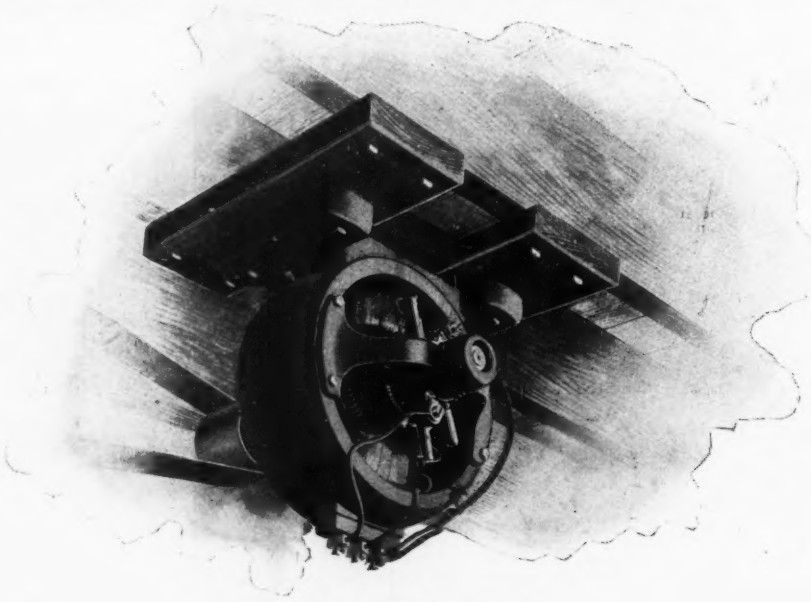
UNITED STATES RAILWAY MATERIAL IN CHILE.—United States Consul Caples, of Valparaiso, January 28th, 1901, reports, as an instance of the increasing trade in railway material between the United States and Chile, that within the past week the Carnegie Steel Company has sold 16,000 tons of steel rails to the Chilean Government, to be delivered in the near future.

A NEW BIPOLAR STURTEVANT MOTOR.

In the development of the bipolar type of motor as specially adapted for direct connection to centrifugal fans, the B. F. Sturtevant Company, of Boston, Mass., has gradually been led into the manufacture of the same general type as independent motors. They of course possess the inherent feature of great range of speed due to the bipolar design. In the accompanying illustration is shown a special arrangement of one of these machines, which are built in small sizes ranging from ¼ to 5 H. P.

The frame or magnet ring is usually of cast steel to support the armature bearing cradle. The stand or base is an entirely separate casting in which the motor is placed and secured by set screws. Evidently the motor itself may therefore be turned to any angle, while the bearing cradle is maintained in a horizontal position. The bearings are of the ring-oiling, self-aligning type, the bearing sleeves being made of hard composition. This feature of having both bearings mounted in one and the same casting insures absolutely perfect alignment, while this feature combined with the ring oiling, self-adjustment design, insures the minimum friction resulting from rotation of the armature. Crucible steel is employed in making the shaft. The armature itself is of the ordinary toothed-drum type, the coils being wound in slots being insulated in a most thorough manner. The commutator is built up of drop-forged segments of Lake copper mounted in composition shells and insulated with amber mica, carefully selected. After being wound, the whole armature is thoroughly saturated with an insulating compound and baked at a temperature of from 150° to 175° F. This renders the armature oil and water-proof, and prevents any liability of a break-down.

The field coils are of durable cotton-covered wire, which, after being subjected to the same dipping and baking as the armature, are carefully covered with micanite paper and heavy tape. This is in turn given an external finish of oil and waterproof paint. Carbon brushes only are used, mounted in a socket type of holder, and provided with every faculty of adjustment. Ordinarily these motors are furnished with V-slide rails in all sizes except the ¼ and ½ H. P., but when it is desired to attach the motor to wall or ceiling and have provision for tightening the belt, a special sliding base is furnished. These motors at standard speeds can be wound to any voltage up to 600, and will carry their full rated load for 10 hours with a temperature rise not exceeding 40° F. above that of the surrounding air, and without sparking. Motors with these provisions for adjustment can be used equally well for the floor, wall or ceiling.



Sturtevant Bipolar Motor.

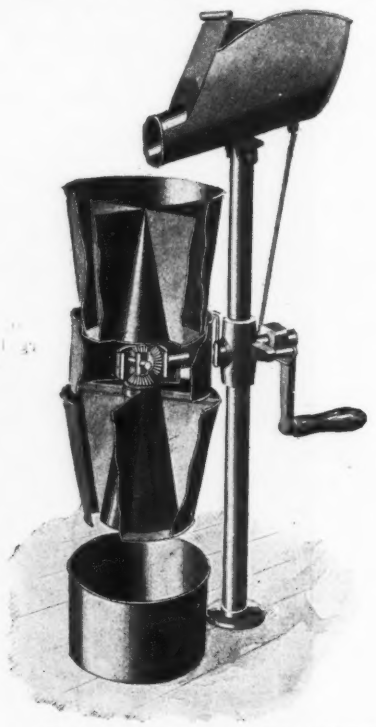
THE CALKINS UMPIRE ORE SAMPLER.

The accompanying illustration shows the Calkins umpire ore sampler, a machine which has been designed for and is manufactured by F. W. Braun & Company, of Los Angeles, Cal. It is intended to fill a demand from assayers, as well as from mines, mills and sampling works, for a machine that will quickly and correctly sample ore in quantities of from 1 to 100 lbs. All competent assayers know that to accurately divide and cut down to an assay sample the average lot of ore brought into the commercial laboratory is more trouble and requires more time than is necessary to reduce the resultant sample to pulp.

With this machine it is claimed that 100 lbs. of crushed ore can be reduced to an assay sample in 10 minutes, and smaller lots of from 1 to 10 lbs. can be accurately sampled to 4 oz. in one or two minutes. Owing to the construction of this machine, it can be easily and thoroughly cleaned; and there is no possibility of salting subsequent samples. The upper and lower buckets are revolved in different directions by means of gear-wheels; and the hopper is continually agitated, making the division of the crushed rock purely mechanical and absolutely impartial, which cannot be the case when samplying is done by hand.

As shown in the sectional view, both buckets are divided into quarters; two of the divisions in each are closed, and two open; therefore, if 16 lbs. of ore is placed in the hopper and the machine operated, 8 lbs. remain in the upper bucket, 4 lbs. in the lower and 4 lbs., or one-quarter of the entire amount, passes into the receptacle at the bottom. By feeding the 4 lbs. obtained by the first operation, a 1-lb. sample would result, or one-sixteenth of the whole; a third feeding would obtain one-sixty-fourth, and a fourth, one two-hundred-and-fifty-sixth of the original sample.

The machine is 3 ft. 7 in. in height, and the net weight is 55 lbs., complete and ready for use.



The Calkins Umpire Ore Sampler.

PROPOSED ELECTRO-CHEMICAL UNITS.

It is an indication of the growing importance of electrochemistry as a separate branch of science, says the "Electro-Chemist and Metallurgist," that at the recent congress at the Paris Exhibition, Dr. Le Blanc, representing the German Electrochemical Society, brought before one of the meetings for their consideration certain fundamental electro-chemical units, some of which had already been discussed and adopted by the third International Congress of Applied Chemistry held at Vienna in 1898. The following definitions were suggested:

"Conductivity"; to be expressed in ohm-centimeters and designated by the letter K. A body has unit conductivity when a cylinder of the body of a square centimeter cross-section and 1 centimeter high has a resistance of 1 ohm.

"Molecular Conductivity" is the conductivity (as defined above) divided by the number of gramme-molecules dissolved in a centimeter cube.

The "Quantity of Electricity" necessary for the separation of a gramme-equivalent (96,450 coulombs) is to be designated by the letter F (after Faraday).

The "Concentration Equivalent" of a solution is the concentration expressed as the number of gramme-equivalents, n, dissolved in a cubic centimeter.

"Dilution Equivalent," $=\frac{1}{n}$, is the reverse of this quantity.

"Conductibility Equivalent," A, is the quotient given by conductivity divided by concentration-equivalent, or $A=\frac{K}{n}$.

The "Electrolytic Mobilities (mobilites electrolytiques)" of anion and cathion to be represented by l_a and l_k respectively. Then

$$l_a + l_k = A, \text{ and } \frac{l_a}{A} = \frac{l_a}{l_a + l_k} = n.$$

"Velocity," to be expressed in centimeters per second for a P.D. of 1 volt per centimeter, is to be represented by U in the case of the cathions, and V for the anions.

The above quantities have been used by Kohlrausch and Holborn in their recent work on "The Conductibility of Electrolytes."

On the motion of Mr. Gall, a special commission was formed for the purpose of presenting a report on the subject to the next Congress. The commission includes Messrs. Blondin, Brochet, Classen, Etard, Gall, Guntz, Hollard, Lebeau, Le Blanc, Lippmann, Marie, Meissan, Muelier and Palmaer.

COAL EXPORTS OF GREAT BRITAIN.—The exports of coal, coke, cinders and briquettes from Great Britain during March were 3,341,843 tons, making the total for the first three months of the year 9,320,051 tons, as compared with 10,274,745 tons in the corresponding period of 1900, and 9,691,596 tons in the first three months of 1899. The coal shipped for the use of steamers engaged in foreign trade this year was 3,014,521 tons, against 2,839,410 tons last year.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals, and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like, will be reproduced whenever possible. Specimens should be of moderate size, and should be sent prepaid. We cannot undertake to return them. If analyses are wanted, we will turn specimens over to a competent assayer, should our correspondent instruct us to do so, and send the necessary money.—Editor E. & M. J.)

331.—Metallic Sodium in Blowpipe Analysis.—In the "Journal" of the American Chemical Society Charles L. Parsons, after referring to the difficulty of producing a good reducing flame in working with the blowpipe and referring to the general use of sodium carbonate as a reducing agent, discusses the statement of W. Hempel that metallic sodium does not give satisfactory results on charcoal but must be used in a special manner.

Mr. Parsons says that "the details laid down by Hempel are entirely unnecessary as the reaction takes place with the greatest ease upon charcoal and the quickness and certainty of the results are almost startling, while the reduction takes place with silicates, chlorides, carbonates, borates, sulphates, sulphides, etc., with as much ease and accuracy as with the oxides themselves."

The author describing the method says: "A small piece of metallic sodium, not more than 3 or 4 mm. in diameter, is hammered out flat on a smooth surface. The substance to be reduced is powdered and spread upon it, pressed into the metal with the hammer and the whole turned and kneaded into a little ball with a knife blade. It is then placed upon a slight depression in a piece of charcoal and ignited with a match or the Bunsen flame. A momentary flash ensues, and the reduction is accomplished. The residue is now heated before the blowpipe, and as the sodium oxide and hydroxide immedfately sink into the charcoal, any fusible metallic particles collect easily into a button and may be recognized in the usual manner. Volatile metals, like zinc, oxidize and yield with surprising readiness their characteristic coatings and on digging up a little of the charcoal, moistening with water and placing upon a silver coin, the 'Hepar' reaction is obtained if sulphur was present in any form. The charcoal should be, of course, uncontaminated by previous tests.

"Applied to minerals the method yields results, but little less certain than when pure salts or oxides are reduced. Galena yields at once a button of lead which in the oxidizing flame gives the lead coating without a trace of the white coating of sulphate which ordinarily results. Garnierite gives a residue of silicon and magnetic nickel to which the bead test can be immediately applied. Chrysocolla and cassiterite yield buttons of copper and tin respectively as readily as a button of lead is obtained from cerusite. Even chromite is immediately reduced, and if the residue is powdered the iron may be quite largely separated from the chromium by means of the magnet. Barite, celestite, and gypsum show with ease the sulphur reaction and the residue if moistened with hydrochloric acid gives the flame tests far more rapidly than if applied to the powdered minerals. In general the method is applicable whenever reduction can take place and whenever the reduced material yields characteristic reactions more readily than the mineral itself.

"The metallic sodium does not need to be kept under naphtha but may be kept in small rubber-stoppered wide-mouthed bottles. A lump of sodium 2 or 3 cm. in diameter will keep for months in this manner with only superficial oxidation. It must, of course, be carefully guarded from water or moisture. In rolling up the sodium and substance to be reduced into a ball, the metal should not be touched with the fingers, for with one or two of the more easily reduced oxides or sulphides the reaction sometimes begins spontaneously. Large quantities of sodium should be avoided or the reaction may become dangerously violent."

332.—The collection of minerals owned by George S. Scott, Chicago representative of the "Engineering and Mining Journal" and exhibited in the Chicago office of the "Journal," now comprises about two thousand specimens. The main feature of the collection is the lead ores, this metal being represented by 60 beautiful specimens, including the following minerals: Native lead, galena, jamesonite, bournonite, pyromorphite, mimetite, vanadinite, cerussite, crocoite, wulfenite, nagyagite, mendipite, anglesite, linarite, caledonite, leadhillite, lanarkite, stolzite, hedyphane, descloizite, nadorite, cylinderite, phosgenite, lehrbachite, matlockite, melanotekite, endlichite, ganomalite and ecdemite.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Tellurium Ores.—Is there any market in the United States for tellurium ores? Can you direct me as to the treatment of such ores?—L. J. G.

Answer.—If you mean by tellurium ores such ores as are or might be worked for tellurium alone or chiefly, there is no market. Such ores have been treated only in an experimental way. The telluride ores which are treated in the United States are treated for their values in the precious metals and no attempt is made to save the tellurium because there is no market for it.

Rio Tinto Copper Ores.—What is the vein rock and mineral of the Rio Tinto Mine, Spain? Is the ore roasted? And how?—H. H.

Answer.—Briefly, the Rio Tinto deposits are lenticular masses of great lateral dimensions and unascertained depths. These masses have an 'iron cap" varying in depth from 40 ft. to 100 ft. or more. Below this cap the masses consist of iron pyrites, carrying from 2 to 3 per cent. of copper. The mines are worked entirely by open cuts, the greatest depth yet reached being 800 ft. A large part of the ore mined is sold chiefly for its sulphur contents, which are from 45 to 48 per cent.; from these ores the copper is saved as a by-product. The tonnage treated at the mines is roasted in heaps and leached out with water, the copper being precipitated on scrap iron and shipped to the refinery in the form of precipitate or cement copper, equal to from 75 to 80 per cent. metallic copper.

This brief description is necessarily imperfect, but space will permit no more. Consult the "Engineering and Mining Journal," May 16th, 1896, page 472; also "The Mineral Industry," Volume IV, pages 257-260.

Water for Stamp Mills.—What would be the estimated average quantity of water in miners' inches, required for a 10-stamp mill, running on free-milling gold ores, operated by steam power? Also for 100 stamps? Will you please describe a simple, practical way for determining that quantity of water in Arizona?—Aqua.

Answer.—The consumption of water varies according to the kind of ore crushed. To quote some instances from Rickard's "Stamp Milling of Gold Ores," a 10-stamp mill in the Grass Valley District of California used 2½ miners' inches, say 3 gals. per stamp per minute. In Amador County, Cal., a 20-stamp mill used—including the concentrators—10 miners' inches, or 108 gals., per minute, when treating ore carrying much pyrites; but the consumption fell to 6 miners' inches, or 65 gals. per minute, with ordinary quartz. At the Homestake Mill in the Black Hills, some time ago the water used in a mill of 100 stamps was 1½ miners' inches per unit of 5 stamps, or about 3 gals. per stamp per minute. In other Black Hills mills the consumption varied from 1 to 1 2/3 miners' inches.

On the other hand, great economy in water is possible by the use of settling basins, and the return of water, so that it is used over and over again. A series of experiments carried on in the Tintic District in Utah, where the saving of water was an object, gave the following result over a period of 6 months, the ore crushed being so hard that the average duty was 2 tons per stamp per day: Water used per ton of ore for making steam, 128 gals.; for crushing, amalgamating and concentrating, 329 gals.; total for milling, 457 gals. For mining purposes 65 gals. were used, making a total of 522 gals. per ton of ore crushed. These tests were described by Mr. G. W. Riter in the "Engineering and Mining Journal," September 2d, 1899.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending April 9th, 1901.

671,430 and 671,431. MACHINE FOR PUNCHING AND FORGING. James H. Baker, Pittsburg, Pa. The combination of means for holding the metal to be treated, a tool-holder carrying a plurality of tools and movably mounted to permit the bringing of the tools severally into operative position; mechanism for reciprocating the holder, and co-operative mechanism for adjusting the tool-holder to present the tools successively in operative position.

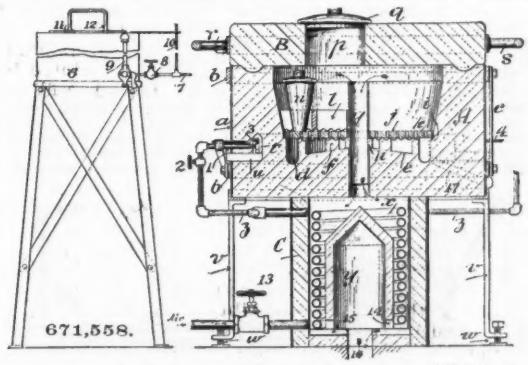
671,439. ROLLING-MILL. Sigmund V. Huber, Pittsburg, Pa. The combination of mechanism for simultaneously raising or lowering both ends of one of the rolls, a lock for holding a portion of the mechanism stationary, and means to shift another portion of the adjusting mechanism and thereby raise or lower one end of said roll.

671,479. METHOD OF MAKING CYANIDES. Jacob Grossmann, Manchester, England. A process for the manufacture of alkali cyanides consisting in passing ammonia-gas over a mixture of carbonaceous matter and a sulphide of an alkali at a temperature of from 700 to 800° C. Also a process for the manufacture of ferrocyanides consisting in passing ammonia-gas over a mixture of carbonaceous matter and a sulphide of an alkali at a temperature of from 700 to 800° C. and adding to the products of reaction suitable iron compounds for the purpose of converting the cyanides first formed into ferrocyanides.

671,507. APPARATUS FOR ELECTRICALLY TREATING GASES. Reginald J. Yarnold, Streatham, England. The combination with electrodes in circuit with a source of electrical energy, of a plurality of respectively separated channel-forming dielectrics interposed between each two adjacent electrodes and so arranged as to form an air or gas channel between each two adjacent dielectrics and between each adjacent dielectric and electrode and so as to divide the space between adjacent electrodes into a plurality of such air or gas channels alternating with such plurality of dielectrics.

671,548. COMPOSITION FOR FIREPROOFING PAPER. Isaac Gordon, Chelsea, Mass. A composition consisting substantially of silicate of soda, 1 gallon; caustic soda, 10 pounds; sal-soda, 5 pounds; rock salt, 10 pounds, and water, 1 gallon.

671,558. ASSAY FURNACE. David Laird, Forfar, Scotland. In combination, a furnace having a central chamber with a conical bottom,



flame-inlets leading through the side wall of the chamber, a series of vanes or flame-deflecting ribs projecting from said bottom, and a crucible-support supported on said ribs.

671,573. ORE-SEPARATOR. Frans H. A. Wielgolaski, Christiania, Norway. In a centrifugal machine, means for feeding a washing fluid from

the center, a chamber provided with reverse branch passages, a passage conducting liquid into one of said reverse passages in a direction opposite to the flow of the washing fluid therein, and means for feeding material to be separated.

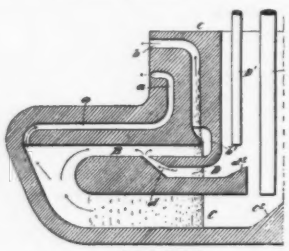
671,591. CONVEYOR FOR ROPEWAYS. Martha E. Hallidie, San Francisco, Cal., executrix of Andrew S. Hallidie, deceased. A conveyor for ropeways consisting of hangers connected together by means of tie-rods, to the upper ends of which are wheels arranged to run on a fixed cable, and having at their lower ends hinged arms adapted to sustain a pole to which are attached slings arranged to embrace and sustain a bundle or package, and a disengaging latch mechanism attached to the hinged arms for the purpose of delivering said pole and bundle at the delivery point.

671,595. ALLOY. James E. Hewitt, Newark, N. J., assignor of one-half to Charles T. Coe, New York, N. Y. An alloy consisting principally of lead and copper in substantially equal proportions, and containing a small percentage of phosphorus and tin.

671,608. LIQUEFIED-AIR MOTOR. Oscar P. Ostergren, Brooklyn, N. Y., assignor to the General Liquid Air and Refrigerating Company, of New Jersey. The combination with a reservoir for containing liquefied air or other gas of a coil connected at one of its ends with the reservoir below the level of the liquid therein, a return-coil parallel with the first coil, the two said coils being connected together at their lower ends, an air or gas operated motor, in communication with the upper end of said return-coil.

671,621. PROCESS OF TREATING LIME. Henry P. Dodge, Toledo, Ohio. The method consists in reducing fresh-burned lime into a fine granular or pulverulent condition; agitating the mass, and, while in a state of agitation, exposing its particles to water in quantity sufficient to effect hydration; permitting the mass to cool, and subsequently sifting or screening the same.

671,630. PROCESS OF MAKING GAS. Ludwig Mond, Northwich, England. In the process of obtaining combustible gases from fuel, preventing the waste of heat and dissociation of ammonia by maintaining the fuel uniformly at a dull-red heat by continuously supplying it with a mixture of air, steam and carbon dioxide definitely proportioned for maintaining this temperature.



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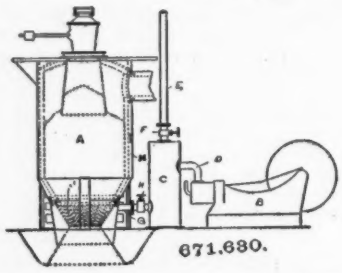

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671,695 and 671,696. PIPE-COUPLING. William H. Hammon, Pittsburg, Pa. A sleeve for coupling pipes, having elliptical openings in its ends, the major diameters of said openings being at angles other than right angles to the axis of the sleeve.

671,704. PROCESS OF TREATING ORES CONTAINING SILVER OR SILVER AND GOLD. Edward D. Kendall, Brooklyn, N. Y., assignor to himself and Edward N. Dickerson, New York, N. Y. The process consists in treating them with a suitable chemical solution containing a thiocyanate and a cyanide capable of dissolving silver or silver and gold, and then treating the so dissolved silver by a suitable sulphide, such as potassium sulphide, and in so regulating the amount of the sulphide to the silver as that they shall substantially equalize each other, in separating the silver sulphide, and in returning the thiocyanate and cyanide into subsequent operations for further treatment of the ore.

671,709. PROCESS OF MAKING DIALKALI CYANAMIDE. Johannes Pfleger, Frankfort-on-the-Main, Germany, assignor to Deutsche Gold & Silber-Scheide-Anstalt, vorm. Roessler, same place. A process for the preparation of dialkali cyanamide which consists in causing an alkali metal and ammonia to react in the presence of a fused alkali cyanide, alkali amide being formed and reacting in its nascent state upon the alkali cyanide to form dialkali cyanamide.

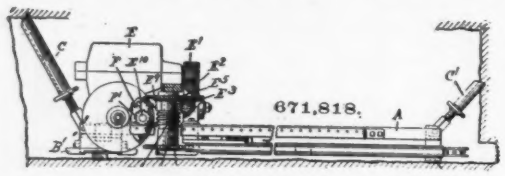
671,752. MANUFACTURE OF TUBES OR TUBULAR OBJECTS. Eugene F. Boulet, Montlucon, France. The metnod consists in forcing a punch or mandrel through the blank and simultaneously subjecting the transformed tubular portion of the blank to fluid-pressure.

671,769. PROCESS OF PRODUCING ACETYLSALICYLIC ACID. Leonhard Lederer, Sulzbach, Germany. The process of substituting the acetyl group for the hydrogen of the hydroxyl group of salicylic acid and of its derivatives, consisting in causing the reciprocal action of salicylic acid and acetic anhydrid in the presence of a condensing agent.

671,797. HOISTING AND CONVEYING APPARATUS. William S. Halsey, Pittsburg, Pa. The combination of a traversing frame or trolley, bearing-wheels journaled in the upper portion of said frame and adapted to rotate on an elevated track, a hoisting mechanism mounted in the lower portion of said frame, a motor connected to the frame and interposed between the bearing-wheels and hoisting mechanism, independent gearing systems through which the bearing-wheels and the hoisting mechanism, respectively, may be rotated by the motor.

671,810 and 671,811. AMMONIA-STILL. Soren Thurstensen, Louisville, Ky., assignor to Henry Vogt Machine Company, same place. The combination of a generator or still having two chambers for the circulation of liquid from one chamber to the other, and longitudinal heating-pipes in each chamber or compartment for a circulating heating medium.

671,818. MINING-MACHINE. Charles E. Davis, Chicago, Ill., assignor, by mesne assignments, to the Goodman Manufacturing Company, same place. In a chain breast mining-machine, the combination of the stationary supporting-frame with the movable forwardly-traveling cutter-carrying frame and rotatable parts mounted on the stationary frame with their axes substantially parallel with the direction



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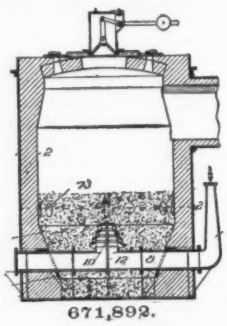
in which the cutter-carrying frame moves, whereby the machine may be moved laterally on such rotating parts, and a locking device to lock such rotating parts from rotation when the machine is cutting.

671,825. FEEDING DEVICE FOR CONVEYORS, ETC. Axel G. Johnson, Chicago, Ill., assignor to the Link Belt Machinery Company, same place. A device comprising a conveyor provided with a series of buckets adapted to move in a substantially horizontal plane during a portion of their travel, a confining device, a receptacle above the confining device and provided with a discharge-opening, a reciprocating part interposed between the confining device and discharge-opening and in a plane at an angle to the plane of the opening, so that it does not directly control said opening, said reciprocating part adapted to receive the material passing through the opening and check its flow, and means for moving the reciprocating part so as to discharge a uniform amount of material in front of each bucket.

671,831. ART OF WORKING DIAMONDS. Ernest Loesser, New York, N. Y. The method of removing a portion of a diamond while preserving the integrity of the removed portion, and at the same time partly finishing a face of the stone, which consists essentially in starting the cut at a corner or angle of the diamond, continuing said cut through that part of the stone, in a plane at an angle to the grain or planes of cleavage of the stone, and at the some operation polishing both surfaces of the cut.

671,892. GAS PRODUCER. Alexander Laughlin, Sewickley, Pa. A gas-producer comprising a body, an ash-hopper tapered uniformly toward the center, a metallic casing inclosing and extending beneath and



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forming the bottom of the producer, and a water seal surrounding the ash-hopper within the body above the bottom, two or more ash-removal openings extending from the ash-hopper being formed in the body and its inclosing casing in line with the water seal.

671,893. CONTINUOUS HEATING FURNACE. Alexander Laughlin, Sewickley, Pa. A hearth or receiving-bed, on which the slabs or billets are moved before being discharged, having a cinder-tapping hole in which cinder is designed to be received, the slabs or billets being caused to travel over or in proximity to said hole before being discharged.

671,925. EXCAVATING MACHINE. Dillon H. Snyder, Toledo, Ohio, assignor of one-half to Charles M. Harrison and Nathan Babcock, Napoleon, Ohio. A boom, a dipper-arm, a dipper or shovel secured to said dipper-arm, pivotal connections between the boom and the dipper-arm, means for longitudinally projecting and retracting the boom, swinging the dipper-arm upon its pivot, raising and lowering the boom.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending March 9th, 1901.

4,272 of 1900. SULPHURIC ACID TOWERS. J. Potut, Vitry, France. Improvements in Glover towers used in sulphuric acid manufacture, with the object of economizing the nitric acid in the coke.

4,961 of 1900. ALUMINUM-NICKEL ALLOY. R. Weidner, Leipzig, Germany. A hard, heavy alloy for bearings, consisting of aluminum and nickel, with admixtures of copper and zinc.

5,808 of 1900. SODA CRYSTAL PROCESS. J. Kunstner, Aussig-on-Elbe, Germany. Rapid crystallization of soda crystals by spraying the saturated solution.

6,139 of 1900. STAMP-MILL CAM. J. Richardson, Lincoln. Improved method of fixing cams on shafts in stamp mills.

7,026 of 1900. WASTE TIN RECOVERY. P. Bergsoe, Copenhagen, Denmark. Method of extracting tin from alloys and waste and depositing by electrolysis.

17,189 of 1900. SILVER ORE TREATMENT. A. Simon, Bordeaux, France. Method of treating copper ores containing lead, silver and antimony and recovering each metal.

17,594 of 1900. TIN RECOVERY FROM SCRAP. F. W. Preto, Gijon, Spain. Improvements in the method of recovering tin from scrap by means of hydrochloric acid.

19,903 of 1900. HAULAGE CLIP. H. Gibson and R. Thompson, Backwerth. Detachable underhaulage clips for colliery tubs.

23,803 of 1900. NICKEL PLATING. J. E. Jasset and A. E. Cinqualbre, Paris, France. In depositing coatings of nickel by electrolysis, making, first, a deposit of copper.

952 of 1901. TIN RECOVERY FROM SCRAP. S. Davis, Birmingham. Improvements in the method of stripping tin and zinc from scrap and recovering the metals.

Week Ending March 16th, 1901.

3,462 of 1900. TREATING ZINC FUMES. J. Armstrong, London. Furnace for extracting zinc from fume by passing it through incandescent fuel and into a bath of molton metal.

3,531 of 1900. WELDING ALUMINUM. M. Urszniewski and J. H. Strzelecki, New York, U. S. A. Welding aluminum at high temperatures by the use of volatilizable compounds of aluminum.

3,668 of 1900. ZINC-LEAD SULPHIDE TREATMENT. J. W. Worsey and J. H. Lancashire, London. A method of treating zinc-lead sulphides in a furnace with hot sulphuric acid and nitrate of soda.

3,918 of 1900. NITRATE OF SODA TREATMENT. W. H. Woodcock and W. A. Harper, London. Improved process and apparatus for extracting nitrate of soda from caliche and ripio.

6,254 of 1900. PURIFYING SULPHATE OF ALUMINA. Peter Spence & Sons, Manchester. Improved method of purifying crude sulphate of alumina.

22,593 of 1900. BLAST FURNACE BOSH-PLATES. A. K. Reese, Lebanon, Pa., and E. Smeeth, Chicago, U. S. A. Improved form of bosh-plates for blast furnaces, that will facilitate renewal.

22,698 of 1900. ELECTROLYTIC EXTRACTION OF METALS. H. A. Frasch, Hamilton, Ontario. Improved apparatus for the electrolytic extraction of metals from ores and mattes.

23,046 of 1900. COATING IRON WITH ALUMINUM. Societe Internationale des Usines et Fouderies d'Aluminum, Brussels, Belgium. A method of coating iron with aluminum by first depositing a coating of copper.

PERSONAL.

Mr. William E. Corey has been elected president of the Carnegie Company to succeed Mr. Charles M. Schwab.

Mr. Harris Franklin, general manager of the Golden Reward Smelter at Deadwood, S. D., has been in New York City.

Mr. Frank Nason has been examining several disseminated lead properties in southeast Missouri for Philadelphia men.

Mr. W. A. Farish has returned to Denver, Colo., after a sojourn of 3 months in California on important mine examinations.

Mr. F. F. Sharpless, who recently returned from a business trip to Mexico, has left on a professional trip to Vancouver, B. C.

Mr. A. L. Collins, of Telluride, Colo., has been visiting Gilpin County during the past week looking after various mining and milling interests.

Mr. P. H. Clark, general manager of the Copper Bullion Mining Company, in the Dragoon District, Cochise County, Arizona, has been in Los Angeles, Cal.

Mr. Martin J. Heller, one of Capt. J. R. De La Mar's staff, is examining mining properties in Mexico and will return to San Francisco about the middle of May.

Prof. I. C. Carrera is to deliver an address at Dallas, Tex., before the State Commercial Convention on May 1st on the mineral resources of Texas and the Southwest.

Mr. Albert Oechsler, assistant superintendent of the American Smelting and Refining Company at Chicago, Ill., has been making a visit to the mines of Gilpin County, Colo.

Mr. Herman Zadig, of San Francisco, who is president of several companies on the Comstock Lode, and who is largely interested in mining there, is making a short visit to New York.

Messrs. M. Gruetz and A. Kiesen, glass manufacturers of Berlin, have been in Pittsburg, Pa., where Mr. V. Hajek, who is interested in the Russian glass trade, was also inspecting American glass-making methods.

Mr. F. H. Buhl, president of the Sharon Steel Company, which is erecting a $10,000,000 steel plant at Sharon, Pa., has tendered his resignation and Mr. George W. Darr, of New York, formerly of Pittsburg, was elected in his place.

Mr. Edmund H. Lunken, president of the Lunkenheimer Company, and Mr. John B. Morris, president of the John B. Morris Foundry Company, of Cincinnati, O., have been in Durango, Colo., where they have mining properties.

Mr. Howard F. Welsh has been appointed by Governor O'Toole, of Montana, to the new position of State Coal Mine Inspector, a position created by the recent legislature. The term of office is 4 years and carries a yearly salary of $2,000 a year, with an assistant.

Mr. Hudson H. Nicholson, consulting engineer for the American Mining Investment Company, of Denver, Colo., has returned from a professional trip through Arizona and New Mexico and is now examining a mining proposition in Boulder County, Colo., for men in Des Moines, Ia.

Mr. Benjamin Talbot, the inventor of the Talbot continuous open-hearth process, is in this country. Horace W. Leash, of the Garret Cromwell Engineering Company, of Cleveland, O., is to install a Talbot basic open-hearth plant at the works of Jones & Laughlins at Pittsburg, Pa.

Capts. Ed Wills and Richard Stephens have been appointed captains of the Arcadian Mine at Houghton, Mich., and its St. Mary's property respectively, because of the resignation of Capt. Wilcox to go to the Mass Mine. Both have been with the Arcadian since it started work.

Mr. Maurice L. Muhleman, for 17 years past connected with the United States Sub-Treasury in New York, has resigned his position, to accept the presidency of the Mutual Mercantile Agency in New York. Mr. Muhleman is well known for his valuable studies of gold and silver movement and similar questions.

Dr. George W. Maynard, we are sorry to hear, is still confined to his house at Morristown, N. J., and is unable to attend to business. The accidental injury to his knee, received some months ago, has proved troublesome and complications arising from a bad cold have contributed to delay his recovery. We hope, however, that we may soon be able to note Dr. Maynard's return to active work.

Dr. Edmund A. Engler, of St. Louis, has been elected to succeed Dr. Thomas C. Mendenhall as president of the Worcester Polytechnic Institute at Worcester, Mass. Dr. Mendenhall retires on account of ill health. Prof. Engler was born in St. Louis in 1856, and graduated from the Washington University in 1876. He has been professor of mathematics in the university at St. Louis since 1881 and since 1896 he has been dean of the Engineering School. His specialty is higher mathematics.

SOCIETIES AND TECHNICAL SCHOOLS.

Society for the Promotion of Engineering Education.—The 9th annual meeting of this society will be held in Buffalo, N. Y., June 29th, July 1st and 2d at the Buffalo Law School.

University of Minnesota.—The Board of Regents of the University of Minnesota has approved the recommendation of the faculties abolishing the degrees of bachelor of philosophy and bachelor of science, the degree of bachelor of arts being hereafter given for all liberal studies.

Chemical Society.—At the recent annual meeting in London, Prof. T. E. Thorpe, the president, made an address in the course of which he said that the society entered on the 20th century mustering 2,368 members, including 33 foreign members. Since the last anniversary 182 communications had been made to the society, a number greater than that of any preceding year. The volumes published in 1900 by the society contained 3,758 abstracts of papers, which had appeared mainly in continental journals.

The committee appointed by the society had decided to recommend that O = 16 be taken as the basis of calculation of atomic weights, and that in assigning a number as the atomic weight of any element only so many figures should be employed that the weight might be regarded as accurately known to one unit in that figure. Prof. Reynolds J. Emerson was elected president for the ensuing year.

Engineers' Club of St. Louis.—At the meeting on April 17th, 25 members and 5 visitors were present. Mr. Rudolph Howard Klauder was elected a member.

The subject of the evening was, "Some Notes on Roofs and Roofing Materials." Mr. Wheeler divided roofing into 4 great classes, viz., felts, woods, metals and silicates. The felts were divided into tarred felts, gravel, ready rock and rubberoid. The woods were divided into boards, slabs and shingles. The metals into corrugated iron, tin, lead and copper. The silicates were divided into mud, slate and tiles.

The advantages and disadvantages of each kind, when laid in flat or pitch roofs or both, together with costs and weights per square, and durability were discussed. The costs given did not include that of supporting material. There were also presented a number of samples of shingle and interlocking tiles, and also a number of illustrations showing tile roofs.

Colorado School of Mines.—The new board of trustees has organized by electing the following officers for the ensuing 2 years: President, Frank Bulkley, Arapahoe County; secretary, James T. Smith, Arapahoe County; treasurer, Jesse W. Rubey, Jefferson County, whose bond was fixed at $25,000.

Mr. Otto F. Thum, the new member of the board from Pueblo County, was president. The hold-over members are W. S. Stratton, of El Paso; Captain E. L. Berthoud, of Jefferson, and Frank Bulkley, of Denver, who was appointed from Pitkin County. Captain Smith, the secretary of the board, is also one of the new members. He has served since April, 1876. The board named a special committee on finances, consisting of President Bulkley, of the board; President Chauvenet, of the faculty, and Treasurer Rubey, with a view to beginning the erection of the proposed hall of metallurgy at as early a date as possible.

Society of Chemical Industry.—New York Section.—At the meeting on April 19th Mr. Fitz-Gerald, chief chemist of the Acheson Carborundum Company, of Niagara Falls, N. Y., read a paper on "Notes on Graphite Produced by the Acheson Process." He described the development of the carborundum and of the artificial graphite industry, which is so closely connected with the former. He illustrated by specimens and drawings the phases of the process and the details of the manufacturing method excited general interest. The paper was interestingly discussed by Dr. Kleber, manager of the Heyden Chemical Company, Mr. Cook, Dr. Munsell and Dr. Schweitzer.

The next paper on the programme was "The Manufacture of Illuminating Gas in Otto-Hoffmann Ovens," by Dr. Schniewind, the chief chemist of the United Gas and Coke Company. In his address he paid greatest attention to the manufacture of gas. A lively discussion followed.

The last paper on the programme, H. C. Myers' "The Sugar Beet in Alkali Soil," was read by title.

The next meeting will take place May 24th.

Institution of Mining and Metallurgy.—At the recent 10th annual meeting in London the following were elected members of the council: Charles J. Alford, Hilary Bauerman, R. T. Bayliss, Charles Butters, John H. Cordner-James, J. Hays Hammond, Edward Hooper, Hennen Jennings, Benedict Kitto, C. G. Warnford Lock, Bedford McNeill, William Morgans, Arthur L. Pearse, Edgar P. Rathbone, T. Kirke Rose, Richard P. Rothwell, John Edward Stead, H. Livingstone Sulman, Edgar Taylor, William Thomas, R. A. Varden. The report for the year ending February 28th, 1901, showed a net increase in membership of 91 names, or about 14%. There were 98 names added to the list.

With the object of stimulating the interest of mining and metallurgical students in the proceedings of the institution, the council has under consideration a definite scheme for offering prizes to students for original papers on subjects appertaining to the objects of the institution.

The financial statement shows the income for the year 1900-1901 to have been £2,087 6s. 9d., and expenditure £1,305 18s. 6d. The income shows an increase of £1,310 15s. 8d. After deducting a sum of £400, which properly belonged to previous years, there remains an increase in income of £910 15s. 8d. The expenditure shows an increase of £344 3s. 11d. Of this sum £98 1s. 2d. is accounted for by increased cost of transactions.

INDUSTRIAL NOTES.

The Sterling Boiler Company, of Chicago, Ill., is to ship a boiler plant to the South African gold mining regions. The shipment will weigh about 500 tons.

The Richmond Locomotive Works, of Richmond, Va., is about to make a shipment of 12 locomotives to Helsingfors for use on the Finnish State Railways.

The Brown Hoisting Machinery Company, of Cleveland, O., is about to ship $25,000 worth of hoisting machinery to Oxelosund, Sweden, for the purpose of handling iron ore.

Homer Charles, manager of the Rapid City, S. D., Foundry and Machine Works, will soon begin the manufacture of kerosene engines. He will build them 3, 6 and 8 H. P. sizes.

The S. Obermayer Company, manufacturers of foundry facings and supplies, of Cincinnati, O.; Chicago, Ill., and Larimer, Pa., has remodeled the latter plant and will double its capacity.

The Virginia Iron, Coal and Coke Company, of Bristol, Tenn., will blow in its Middlesboro, Ky., furnaces about May 1st and open several ore mines at Bronco, Ga., Truro and Ben Hur, Va.

The Pittsburg Locomotive Works, of Pittsburg, Pa., is to furnish 8-wheel tank locomotives for the Calcutta, India, port commissioners. The Pittsburg Company's offer was 11% below the lowest offer of any British company.

The C. E. Billin Company, Chicago, has bought and will sell the 120-stamp mill of the Diamond Hill Mining Company, Hassel, Mont. This mill was erected in 1897 by the Union Iron Works, of San Francisco, and because of lack of ore it was operated for a few months.

The Goheen Manufacturing Company, of Canton, O., has been awarded a contract by the India Office, London, Eng., for the supply of a considerable quantity of its carbonizing compound for use by the Assam and the Northwestern railway companies, India.

Wm. B. Scaife & Sons, Pittsburg, Pa., have received a contract from Spang, Chalfant & Company for extensive additions to its Etna tube works. A number of large steel frame buildings covered with corrugated iron will be erected, involving a heavy tonnage of structural material.

Mr. H. D. Crippen, of New York, reports that sales of the Jackson hand power drill are increasing steadily. Orders received at New York so far this month include 12 for Peru, 4 for Japan, several for Mexico and the Denver office reports many sales throughout the Western mining States.

It is stated that the John Wales Company, of Boston, Mass., has acquired the plant of the Corless Safe Works of Auburn, R. I., including 11 acres of land on the tracks of the New York, New Haven & Hartford Railroad. The plant will be equipped with the most improved machinery, together with a Garrett rod mill and open-hearth steel plant, with a capacity of about 75 tons per day.

The Harbison-Walker Company, of Pittsburg, Pa., manufacturer of silica and fire clay brick, is to furnish the fire brick to be used in the erection of the 12 50-ton basic open-hearth steel furnaces of the St. Clair Steel Company at the new plant to be built at Blair Station, near Pittsburg. This will be one of the largest open-hearth plants

in the Pittsburg District, being second to that of the Carnegie Steel Company at Duquesne.

The Chicago Cahall Sales Department of the Aultman & Taylor Company reports among recent sales of Cahall boilers 20 250 H. P. vertical boilers for the Colorado Fuel and Iron Company, Pueblo, Colo; 8 125 H. P. boilers for the Republic Iron and Steel Company, Chicago; 3 500 H. P. boilers for the E. P. Allis Company, Milwaukee, Wis.; 2 250 H. P. boilers for the Oliver Mining Company, Milwaukee, and 3 boilers aggregating 1,000 H. P. for the American Steel and Wire Company, Chicago.

The Standard Paint Company, of New York City, manufacturer of the P. & B. ruberoid roofing, preservative paints, insulating papers and electrical insulation, has been obliged by the great increase of its sales to enlarge its plant again. Another addition has been made to the factory buildings at Bound Brook, N. J., greatly increasing the capacity of the works. The plant has been running to its fullest extent, day and night for several months, to keep up with orders.

Some large orders have recently been placed with the Denver office of the E. P. Allis Company, among which may be mentioned 2 direct connected Reynolds-Corliss engines, 22-in. and 44 by 22 in., for the Colorado Fuel and Iron Company, and the complete engine for equipment for the new Florence Electric Street Railway Company, the latter consisting of two direct-connected Reynolds-Corliss engines, having cylinders 14 in. and 28 by 30 in.

The American Bridge Company's exhibit at the Pan-American Exposition will include 2 buildings each about 60 ft. wide and about 150 ft. long. One of the buildings will be of extremely plain construction, being designed for use as a manufacturing plant. The second, however, will be of ornamental design, such as would naturally be used for freight depots, street car barns, etc. The American Bridge Company will also make an extensive exhibit of parts of large bridges.

A combination of all the wire-glass properties in this country, under New Jersey laws, is announced. The new concern, which will own all the American wire-glass patents, is called the Mississippi Glass Company, and is capitalized at $1,500,000. Only $1,200,000 of stock will be issued at present, and that will be kept in the treasury instead of being put on the market. Wire-glass will be produced for the present only at the factories of the Mississippi Glass Company at St. Louis, and of the Appert Glass Company at Port Allegheny, Pa. The officers of the Mississippi Glass Company are: E. W. Humphreys, president; William Dulles, Jr., vice-president and treasurer; Lawrence Dilworth, Edward Walsh, Jr., and William L. Elkins, Jr., directors.

A new 850-ton steel draw was swung into position at the Lackawanna Railroad bridge crossing the Passaic River at Newark, N. J., April 21st, in 1 hour and 35 minutes, but traffic over the bridge was suspended from 5:06 in the morning until 6:27 at night. The new structure had been put together on false work built in the river and transferred to scows. The scows were towed close to the bridge and similar superstructures on scows had been built under the old draw. The latter scows were partially filled with water, which was pumped out, thus raising the draw from its support.

At 6:30 a. m. the scows bearing the old draw were hauled down stream by hawsers connected with powerful engines set up on derricks in the river. At 7:45 o'clock the hawsers were fastened to the new draw and at 9:20 o'clock the draw rested upon its permanent support. The draw was built by the American Bridge Company and the work was under way since last June.

The Bullock Electric Manufacturing Company, of Cincinnati, O., has acquired 15 acres of land directly opposite the present plant at East Norwood, O., upon which the Norwood Foundry Company will erect a foundry building 200 ft. long by 150 ft. wide; a pattern storage house of fireproof construction, 50 by 150 ft., 3 stories high, and a modern office structure. All these buildings will be built of buff pressed brick with steel frames and trusses to conform to the present buildings of the Bullock Electric Manufacturing Company. The foundry will be equipped with 3 electric cranes, the largest of which will have a capacity of 50 tons. The side bays, which will be 25 ft. wide, will be served by hand traveling and jib cranes. Electricity will be used for power and lighting throughout. While this foundry will be operated under the name of the Norwood Foundry Company, it will serve primarily the needs of the Bullock Electric Manufacturing Company and will a'so be in a position to handle outside orders.

TRADE CATALOGUES.

D. M. Steward's acetylene gas burners are described in a neat little pamphlet issued by the State Line Manufacturing Company, of Chattanooga, Tenn. The pamphlet calls particular attention to the "Wonder" burner, which is stated to show a radical departure from all precedent in burner construction and to have shown very high photometric results after severe tests.

"The Cause of Foaming in Locomotive Boilers," a little 32-page pamphlet in a bright red cover, contains reprints of 3 articles by C. Hershel Hoyle that appeared recently in the "Railroad Gazette." The subjects of foaming and purifying feed water for boilers are discussed clearly and concisely and the pamphlet is interesting reading. It is published by the Industrial Water Company, of New York City, and is sent to inquirers upon application.

Bulletin No. 1004, issued by the Denver Engineering Works, of Denver, Colo., describes the improved Cammett concentrator. The pamphlet shows in detail the construction of this well-known form of concentrating label and points out its merits. It is stated that, owing to the table having a grooved surface, it can make separation between minerals whose specific gravity is as little as .5 of a unit, while the grooves force the concentrates to travel in a straight line, thus preventing losses from side washing. The pamphlet contains a table showing the specific gravity of the more important elements.

The Westinghouse Electric and Manufacturing Company, Pittsburg, Pa., continues to issue its excellent series of illustrated circulars. No. 1036 describes belt-driven single-phase alternators for 1,600 and 7,200 alternations per minute; No. 1037 shows engine-type alternators, with details of construction. Some of these alternators are 1,500 Kw. of rotating armature type. Circular No. 1038 describes the Westinghouse No. 49 railway motor, one of the company's standard motors for medium speed work. Circular No. 1039 treats of the Westinghouse No. 38B railway motor, which is said to have been remarkably successful under the severe conditions of actual service. Circular No. 1,040 tells about self-cooling transformers and No. 1041 describes round pattern voltmeters and ammeters.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

ALASKA.

Latuya Bay Gold Mining Company.—This company is about to start work on its beach diggings. Carl S. Plant is manager. San Francisco men are interested.

Cape Nome.

The report of a blizzard at Nome, in which 200 miners are alleged to have perished, is discredited by arrivals at Vancouver from Dawson on the steamer "Victorian." The Skaguay papers further investigated the report after receiving the first announcement, and telegrams were received at Skaguay, but no confirmation of the story has been received either at Dawson or at Skaguay.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Defender.—This mine across the river from West Point is working with a full force of men. The south drift of the 300 ft. has been started. Some high-grade free milling ore has been encountered in the 12 ft. ledge.

Oneida.—At the 2,000 ft. drifting and crosscutting goes on with plenty of ore in sight, and the 60-stamp mill is running steadily. A double-deck cage to accommodate 18 men will be used in place of the skips.

Peerless.—The shaft at this mine, 2½ miles south of Jackson, is down 750 ft. Fifteen men are employed. The prospects are said to be good.

Shenandoah.—At this mine near Plymouth, about 25,000 tons of telluride gold ore is reported blocked out. The management is to treat the ores.

El Dorado County.

(From Our Special Correspondent.)

Montezuma.—This old mine, ½ mile north of Nashville, has been bonded by San Francisco parties who are carrying on work in 2 shafts. Some high-grade ore has been encountered. A 10-stamp mill is on the property.

Inyo County.

(From Our Special Correspondent.)

Barnes & Anderson.—The new concentrators have been installed, and the 2-stamp mill is running full time on $50 ore, plenty of which is said to be blocked out. A mule train hauls the ore to the mill.

Kern County.

(From Our Special Correspondent.)

Butte Lode.—About 75 tons of ore from this mine on the 5th level, 262 ft. from the surface, milled over $125 per ton. On the lowest level the same character of ore is found. The property is north of Randsburg.

Winnie.—This claim in the Stringer District is being developed under bond by Goldsmith & Robb, who have put the property in good shape. There are 2 shafts down about 120 ft. each, while a winze has been sunk 50 ft. at the end of the drift. The last mill run at the Red Dog milled $40 per ton, and it is said that there is plenty of high-grade ore in sight.

Mariposa County.

(From Our Special Correspondent.)

Hite.—Machine drills are being installed at this mine and work will be resumed with an increased force. About 200 ft. of drifts and crosscuts has recently been run in new ground, developing large ore bodies in the 200 and 300-ft. drifts. The vein, 3 ft. in width, is said to be rich in free gold. The drifts are made from the tunnel level, through which the mine is worked, the actual depth being 1,200 ft. The old 40-stamp mill is being repaired. The cyanide plant is treating 100 tons of the old tailings daily.

James Waller.—This copper claim, located in the White Rock copper district, 15 miles from Le Grande, has been sold for $15,000. The ore shipped to the smelter is said to have averaged $1,700 to the car-load. The new owner will work the property on a large scale.

Mendocino County.

(From Our Special Correspondent.)

Mendocino Electric Quicksilver Mining Company.—This company has been incorporated to develop a cinnabar claim near Hopland. The officers and directors are: E. C. Hurber, president; Geo. B. Baer, secretary; S. Purschower, A. Bently and Geo. L. Foye. The cinnabar is located in a bar on the hillside.

Nevada County.

(From Our Special Correspondent.)

Allison Ranch.—Sinking has been resumed at this mine, and the main ledge is being worked on 3 levels. A 300-H. P. induction motor is contracted for.

Champion Mining Company.—At the annual meeting of this company the following officers and directors were elected: J. Fetz, president; J. S. Shuster, vice-president; B. N. Shoecraft, secretary, and I. Assion, J. Ott, C. Nunnenmann, I. L. Rosenthal and G. Kartschoke.

Grass Valley Exploration Company vs. Pennsylvania Mining Company.—This big suit over apex rights is having its hearing in the United States Court.

Lecompton.—At this mine in Willow Valley a 2-ft. ledge has been located under the creek, which it is estimated will pay $75 per ton. A new double compartment shaft is being sunk to facilitate the handling of the ore. The new mill will be completed in a few days.

Mountaineer.—This mine, 1 mine west of Nevada City, has been leased to an Ohio syndicate for 2 years with an option to buy for $50,000. The property comprises 80 acres south of Deer Creek and a full claim 1,500 by 600 ft. on the north side, where the works are located.

Reward Mining Company.—This company, which is in operation 1 mile southwest of Nevada City, has elected the following officers and directors: Col. Geo. E. Stone, president; Col. W. McDonald, vice-president; Col. Fuller, Col. D. E. Miles, Gen. J. A. Dickinson and Thomas Flint. S. W. Backus is secretary and James T. Gribble superintendent.

San Bernardino County.

(From Our Special Correspondent.)

Dean & Jones.—The output of this mine in the Slate Range is reported to be about $25,000 per month.

Shasta County.

(From Our Special Correspondent.)

Mountain Copper Company.—This company has placed an order with E. P. Allis Company, of Milwaukee, for a large convertor plant, to consist of 3 stands of converters, an electric crane, compressor, chilean mill for crushing and preparing linings for the shells, steel frame building and other necessary appurtenances.

South Fork Development Company.—Preparations are being made to resume work on this property at Igo. The tunnel, in 200 ft., will have to be extended 2,500 ft. to cut the ledge. Power drills will be used as soon as the air compressor is installed. Two men have been busy all winter.

Sierra County.

(From Our Special Correspondent.)

Oriental.—This mine near Alleghany is to be opened up in a few days with a large force of men under H. S. Johnson, superintendent.

Siskiyou County.

(From Our Special Correspondent.)

Black Bear.—A large shaft is started by the new company. The mill is now crushing on a 500-ton run of rich ore from the lower works.

Oak Bar.—At this hydraulic mine on Oak Bar, 23 miles west of Yreka, the giants are in full operation under the management of William Bannister.

Quigley & Geney.—Work on this hydraulic property adjoining the Eastlick Mine at Oro Fino, will be carried on by the Eastlick Brothers and Quigley. They will work by the hydraulic and elevator process with water from the Eastlick ditches and expect to have everything in running order in a few days. The ground is said to be rich. The water will probably last until August 1st.

Sonoma County.

(From Our Special Correspondent.)

Culver & Bear.—At this quicksilver mine near Cloverdale the tunnel is in 540 ft. and the ledge will probably be reached in August. It is reported that 106 flasks of quicksilver were taken out during 1900 from croppings of the mine.

Tuolumne County.

(From Our Special Correspondent.)

Grizzly.—The main shaft, 1 mile east of Carters is down 800 ft. On the 700-ft. level a drift has been run north 425 ft. and will be continued to the rich ore shoot. The workings comprise about 3,600 ft. of shaft, cross-cuts and drifts. A larger hoist will be installed very soon. Water power is used. The vein is said to be rich.

Snell.—This group of mines 7 miles east of Murphy, in American Camp District, has been bonded to an English syndicate for $38,000. There are three claims—the Snell, True Business and Horseshoe. On the former a shaft down 135 ft. has developed a vein 22 in. on the foot wall, and 18 in. on the hanging wall, with a 6-in. dyke between. The mill tests average $25 per ton. There is a 2-stamp mill on the ground which crushes about 6 tons daily. The True Business is opened up by a tunnel in 200 ft., while 1 186 ft. with a 175-ft. upraise to the surface on the Horseshoe shows ore which assays $30 per ton.

COLORADO.

Boulder County.

(From Our Special Correspondent.)

Mining Developments.—This year promises to be the best for the last decade as far as production and development work are concerned. It has been many years since so many big projects were planned, so much capital interested, and so much development work done.

Alamakee.—The Cold Spring Company has control of this property in Gold Hill District. It has been idle for a number of years, but is being opened up and small amounts of very rich ore taken out.

Emancipation.—This mine at Sunshine was lately offered to Eastern parties at a large sum, but the deal has fallen through. It is owned by E. J. Temple & Son, of Boulder. The shaft is down about 600 ft. and drifting is under way on most of the levels. About 1,500 tons of milling ore are shipped per month besides small quantities of first-class.

Invincible.—This claim at Jamestown is in good ore. Messrs. Bergheim & Brown, of Boulder, and some Denver parties are developing it.

Logan.—This claim at Crisman, owned by Thomas Mann, is being worked toward the main vein through the Croesus tunnel, at a depth of about 850 ft. Part of the mine is blocked out to leasers and part worked by the owner.

Lucky Star.—This mine, in Sugar Loaf District, is in fine condition. Chas. Wise, Chas. Cheney and Robert Duncan, of Boulder, are the owners.

Nugget.—The mill at Rowena is working steadily, night and day, on ore from the mine managed by Mr. Denison, of Gold Hill. The ore is low-grade, netting from $10 to $12 per ton; the vein averages from 10 to 12 ft. wide.

Richmond.—This property, owned or controlled by Mr. Cooke, of Denver, is one of the finest properties at Salina. The shaft is down 270 ft. and sinking continues. Five sacks of ore shipped in March netted $500.

Slide.—This property continues to be the best producer in the Gold Hill District. About 35 men are employed, chiefly as leasers. Some very fine ore is taken out.

Victoria.—This property is being developed under the management of Harry McClure. The Boston, Mass., owners have recently paid $12,500 to Mrs. Charles Davis as the 6th installment on the purchase price of $80,000. Fine machinery has lately been installed.

Clear Creek County.

(From Our Special Correspondent.)

Mining Map.—James L. Underhill, of Idaho Springs, has made and published a new mining map of the Idaho Springs and Gilpin County districts. It is 34 by 40 in. in size and embraces all the patented claims in an area of 34 square miles. Among the new features is the proper delineation of the various mining districts.

Centennial.—This property at Georgetown is to be worked by a new company. Col. Evans, who has operated in the zinc mines of Joplin, Mo., is in charge and says that an air compressor for 3 power drills is to be installed at once.

Colorado-California Shareholding Mining and Milling Company.—Both mills recently bought by this company at Idaho Springs are running on ores from the Crown Point, Franklin and Silver Age mines. J. G. Berryhill, president of the company, with manager W. H. Knowles, have been giving the work at the mines and mills personal attention and as a result have opened up extensive development ground. The 3 mines, although 3 miles apart, are on the vein showing 20 ft. of pay ore in the Newhouse Tunnel. With 2 mills treating 140 tons per day they will be unable to handle the product now coming from development.

Gum Tree Gold Mining and Milling Company.—Work has been resumed on this property after an idleness of 2 years. The company has raised sufficient money to put in new machinery and sink the shaft 300 ft. more. Levels are to be driven to get under the ore 400 ft. shoot opened in the road level. John Owen is manager.

Mendota.—The Chicago company, which was organized to purchase the Mendota Mine at Silver Plume, after working under an option, failed to pay the men and closed down. While an effort was being made to settle up the differences, R. O. Old, the owner, died, so that it is probable that nothing will be done with the big group of claims until later in the year.

Monarch Company.—Manager George McClelland is getting patents on 42 claims of this group. He already has about 50 patents. There are fully 100 other claims that will be patented. Wm. Beals, Jr., and his partner, of Boston, have just examined this and other properties in the section around Idaho Springs.

Gilpin County.

(From Our Special Correspondent.)

Mills as Personal Property.—Judge Skidmore in the District Court of Galena, Kan., recently rendered a decision that mills built on leased ground and the machinery therein are not a part of the realty, but are subject to attachment and sale under execution and refused to issue an order restraining a constable from selling the mills of the Eureka Mining Company on which he had levied. The attorneys for the mining company will take the case to the Federal Court at Kansas City.

Transfers and Mining Deeds.—Emma Husband et al. to H. L. Morris, ½ interest Chester Lode; R. C. Barker to L. & S. Sternberger, east 500 ft. Peck Lode, consideration $1,500; F. B. Lehmann to G. W. Blethen, 2/3 interest West Pewabic Lode; E. J. Adams to A. Lindquist, 1/6 interest Magdalen Lode; L. Mack to L. & S. Sternberger, the Louisiana Lode, consideration $7,000; F. A. Butler to R. O'Brien, the R. A. M. Lode, lease and bond 1 year for $10,000; John Stanton to L. Muther, the Old Town Lode and portion of Pewabic Mill Site; E. C. Flack to Frank N. Pierce, the Yellow Jacket and 16 other lodes in Wisconsin District; F. B. Lehman to G. W. Blethen, 1/12 interest in Russell Lode; Rebecca C. Barker to Sternberger Brothers, the Columbus Lode in Russell District, consideration $3,500.

W. F. Fick to John Best, 1/3 interest Ouray Lode; Morton Jones to A. B. Jones, 9/100 interest Maine No. 2 Lodes, 1/10 interest in American Flag Lode; Alexander McLeod to Notaway Gold Mining Company, ½ interest east 900 ft. of Notaway Lode, consideration $12,500; C. F. Hill to J. P. Spear, 1/20 interest in east 700 ft. Wautauga Lode; M. D. Ickis et al. to C. Springer, ½ interest Naragansett Lode; M. J. Connor to S. R. Snaveley, the Gold Rock Lode.

Alpha Gold and Silver Mining Company.—This company, working the Galena property, is figuring on a stamp mill. John Grant, of Central City, is manager, and shipments of good ore are steadily made.

Bertha Gold Mining and Milling Company.—This company has purchased the Anderson mill at Idaho Springs; price reported, $11,000. The company will put men to work on its vein in the Newhouse Tunnel. M. W. Tanner, Russell Gulch, is manager.

Boston & Denver Consolidated Mining and Milling Company.—Manager L. H. Stockbridge has started sinking in the Fisk shaft, now 1,100 ft. deep. About 100 men are at work, mostly on the sub-leasing system, and a good deal of ore is taken out.

Mabel.—Denver parties will put on a gasoline hoist plant at once. F. W. Kroenke, of Central City, is in charge, and some mill ore has been opened in development.

Missouri.—F. H. Hegwer has formed a Colorado pool to work this property in Russell District, owned by Henry Paul, of Denver.

National.—Messrs Lowe and Dines, of Denver, who are working this property, have opened up a big body of ore, which is carrying increased values. They contemplate building a mill and are making tests to determine what kind of mill to erect. The ores to be delivered by aerial tramway. S. Harris, of Russell Gulch, manager.

National Tunnel and Mining Company—A gasoline engine and a dynamo are being installed and electric drills will be at work soon for driving of the big bore. Chicago capital is interested and L. C. Wood, of Central City, is in charge.

Pyrenees.—An English company may take hold of this property if arrangements now pending go through.

Town Topics Mining Company.—East Notaway is being worked, mostly on the sub-leasing system, and the company is making handsome profits. Smelting ore running from 4 to 11 oz. gold per ton is being taken out. M. D. Draper, of Central City, is manager.

Lake County—Leadville.

(From Our Special Correspondent.)

Empire Gulch.—Some very fine specimens of talc carrying gold to as high as 4 oz. per ton have been brought to town recently.

Fanny Rawlins.—The South Winnie Company's operations near this property are discussed in mining circles. The ore as broken shows 2.6 oz. gold, 48 oz. silver, 4% copper and 15% lead.

Fedilia Gold Mining Company.—This concern is advertising extensively in the East as to what it is doing in this camp, when it does not own a foot of ground in the section. The facts are as follows: C. N. Priddy and A. Thelien, owners of the Best Friend Claim in Big Evans Gulch leased and bonded the property to C. R. Johnson, the principal promoter of the Fedilia, who then started for the East and has not been seen here since. Not a day's work has been done on the claim by the Fedilia Company and the lease and bond is forfeited. The owners wrote Johnson, notifying him of this fact, and he wrote promising to straighten matters up. This was several weeks ago and nothing has been done, though the stock is reported here as being advertised and sold right along.

Gordon-Bengal Tiger.—Development work is being pushed on No. 5 tunnel and everything is being put in condition for heavy work this spring. The property was purchased recently by D. E. Murphy, of Milwaukee, for $200,000.

Hoffer.—Boston capital is pushing work on this property opposite the Boston Gold Copper Smelting Company's plant. In 1894 a drill hole showed samples running 100 oz. in silver and other values.

Leadville Gold Basin Mining Company.—John F. Walsh, James Nimon, J. E. Milligan, C. W. Rogers, P. H. O'Brien and M. Ahern, with a capitalization of $500,000, have organized to develop 20 acres of ground owned by the Big Four Gold Copper Company, under a 3 years' lease. Work will start at once. The continuation of the rich ore shoots in the New Monarch and Fanny Rawlins seems to assure success for this undertaking. Leadville Zinc Output.—F. H. Kirby, of the M. K. C. Electrical Separator Company, of Washington, D. C., has been investigating the lead-zinc sulphides here and contemplates the erection of works.

Little Joe.—J. W. Dixon, of Philadelphia, manager, is here to push work. The output is one ton of smelting ore to 20 tons of good free milling gold ore.

Old Dumps.—Several large dumps at one time considered worthless are proving paying propositions, and industrious lessees are making money. Andrew Dyatt has contracted for 2,000 tons from the Gallagher dump, and should results prove satisfactory the Arkansas Valley Smelter will put through the entire 20,000 tons.

Orinoco.—Surface water property has become so annoying that work is temporarily suspended.

Union Leasing Company.—The output of silicious ores is 600 tons monthly.

San Juan County.

(From Our Special Correspondent.)

Copper City.—A rich strike is reported from this property on Kendall Mountain, near Silverton. An ore chute 3½ ft. wide has been opened, which carries pay values in gold, silver and copper.

Richmond Group.—The probable sale of this Silverton property is reported by the management, to Eastern parties. The Richmond is an old-time producer carrying low-grade ore. A large reduction plant will be erected if the sale goes through.

Silver Lake.—It is reported that this famous property near Silverton has been sold to Guggenheim Sons for a large sum. S. I. Hallett, of Aspen, is to take charge in the interest of

the Guggenheims, and it is stated that he will be the general manager.

San Miguel County.

(From Our Special Correspondent.)

Butterfly-Terrible.—The stock of this company, placed last summer at 20c., is now selling at 48c. Manager D. J. Sayer is carrying on development that is said to show increasing gold values. An electric plant is being installed for increased mill power and to light the mine and all buildings. The company owns over 70 acres of patented lode claims in one of the best mineralized districts in the county.

Meldrum Tunnel.—This tunnel, to run from Pandora to Ironton, will resume work May 1st. Its total length will be 4½ miles; dimensions, 12 by 12 ft., with some 4,000 ft. already driven. When completed, will cut the Camp Bird, Tom Boy, Argentine, Japan, Columbia and other producing properties at depths varying from 600 to 2,000 ft. Three blind lodes have been cut already and others are expected. The corporation includes English and Scotch capital.

Tomboy Gold Mines Company.—The company has been forced to temporarily close down its mill, owing to lack of water. A few days of warm weather will renew the supply, while the stoppage is utilized in overhauling the plant. Development is not suspended.

Summit.

Mecca Placer Mining Company.—L. Kingsbury, manager of this company, recently returned from a visit to New York and Boston. The directors of the Mecca will install a new plant of elevators and mine and prospect upon a much larger scale than heretofore. At the time of closing work last season, it is said that the ancient bed of the river had been found and it is proposed to follow the rich streak of gravel by means of tunnels in the sand. At the same time the ground along the stream will be thoroughly explored with drills.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Arno Gold Mining Company.—At a meeting of the stockholders it was decided to increase the capitalization of the company from 1,200,000 shares to 1,500,000 shares. The property adjoins that of the Mary McKinney and has the right to mine under the streets and alleys of the town of Anaconda as well as other property in that vicinity.

Elkton Consolidated Gold Mining Company.—The unwatering of this mine is proving rather more of a job than was at first expected. It is rumored that the mine is to close down partly for a while in order to give more boiler power for the pumps. This interferes with the present working of the mine.

Stratton's Independence.—A strike of considerable magnitude is reported in the lower levels. While particulars are very meager there seems to be no doubt that a large body of ore has been discovered. Work is at present being pushed on the main shaft, which is about 1,050 ft. deep.

GEORGIA.

Lumpkin County.

Findley.—As heretofore reported, Mr. J. B. Witt, who recently leased this mine, has undoubtedly struck one of the rich pockets for which the mine was once famous. Though reports doubtless exaggerate the amount taken out, it has been enough to give the lessee a very substantial profit. The present pocket was struck at a depth of about 160 ft., much below any of the former ones.

IDAHO.

Owyhee County.

Poorman.—At this mine, at Silver City, about 16 men are now employed under F. Gerling, superintendent.

Shoshone County.

Bunker Hill & Sullivan vs. Last Chance.—Judge Beatty, in the United States Court at Boise, has decided this case against the Bunker Hill. The contestants are two of the largest silver-lead companies operating in the Coeur d'Alenes. The judge enjoins the Bunker Hill Company from taking ore from the rich deposit in the ground claimed by the Last Chance.

Golden Chest Mining Company.—According to a local paper this New York Company has made final payment on the Dora, Katie Burnett Consolidated, and Paymaster Lodes and the Idaho 20-stamp mill. The Golden Chest remodelled mill has been running about ½ time on account of lack of water. The Idaho Mill may be moved and remodelled, as it is of little use in its present situation. The company proposes to install an air compressor and extend the Golden Chest Tunnel.

MARYLAND.

Frederick County.

Liberty Copper Mining Company.—This company, whose property is situated about 2 miles north of Libertytown, has reorganized, and will be known as the Liberty Copper Mining and Milling Company, with the following officers: Thomas E. Ludlam, president; John Schoennerr, treasurer; M. C. Stafford, secretary; W. J. Ayers, vice-president and general manager. The company is capitalized at $2,000,000. Work has reopened and new dry process machinery, with a capacity of crushing and separating 100 tons of rock per day, will be erected.

MICHIGAN.

Copper—Ontonogan County.

Champion.—This mine, controlled by the Copper Range Company, has contracted with the Wisconsin Bridge and Iron Works, of Milwaukee, Wis., for a mill building 178 ft. by 215 ft., intended for 4 heads, though but 3 will be installed at first. The machinery for the mill will be furnished by the Nordberg Company, of Milwaukee, including the 3 heads, engine and condensers.

Michigan.—At this mine the old workings of the Minnesota are being cleared of water through B shaft. B shaft was sunk 76 ft. in March and will be sunk to 1,200 ft., while A shaft may be sunk as deep.

Capt. Joseph Thomas has charge of the underground work and about 100 men are employed. To date 822 ft. of crosscutting has been done, including 370 ft. in the adit on the Rockland property.

Iron—Marquette Range.

Cleveland-Cliffs.—The option of $9,500,000 upon the mines and other property of this company to the United States Steel Corporation has been declared off. The Cleveland Cliffs Iron Company and Corrigan, McKinney & Company are the largest independent operators in the Lake Superior district.

Regent.—At this group of mines at Negaunee a drift has been completed after 6 months' work, connecting the Blue Mine with the Prince. The drift follows the mine workings part way and is 2,500 ft. long. The last 500 ft. was through solid rock. The Blue shaft has always contained a skip and a cage, but henceforth there will be 2 skips located there and the men who were formerly hoisted and lowered through that outlet will go down via the Prince shaft, where there are 2 cages.

MINNESOTA.

(From Our Special Correspondent.)

United States Steel Corporation.—T. F. Cole will have charge of the mines of the company on the Vermillion Range and has already moved to Duluth from Michigan; W. J. Olcott will have charge of all the mines, explorations, developments, etc., on the Mesabi Range, and will give over the charge of the Duluth, Missabe & Northern road. E. F. House, manager of the Pittsburg, Bessemer & Lake Erie road, will act as manager of the Duluth, Missabe & Northern and Duluth & Iron Range roads and will move to Duluth from Pittsburg at once. He takes the place made vacant by the removal to New York of J. L. Greatsinger and the withdrawal to the mining field of W. J. Olcott. Dr. N. P. Hulst will remain in general charge of the technical and scientific work of the corporations, as he has been of the Oliver Iron Mining Company. A. B. Wolvin, of Duluth, has been made manager of the allied fleets, now numbering 112 steel ships of the largest size, capable of moving in the short lake season about 10,000,000 tons of freight. The fleet headquarters will be at Duluth. Mr. Edwin S. Mills, Cleveland agent for the Pittsburg (Carnegie) Steamship Company since its formation, will be the assistant general manager, with headquarters at Cleveland, and will have charge of the distribution of ore from ships. J. B. Cotton, who has been counsel for the Consolidated Mines at Duluth, will remain with the new company as general Western legal representative, a situation for which he is peculiarly well fitted. It is notable that these places are filled, with the exception of that of manager of the steamship company, by men who have been identified with the Carnegie and Rockefeller branches of the company.

There are already about 100,000 tons of ore in the Two Harbors docks of the Duluth & Iron Range road. This is being increased by the wheeling into line of more mines and the starting of shovels in stockpiles.

Work has ceased on the extension of the Duluth, Missabe & Northern Road to the Stevens Mine in T. 59, R. 15, which has been under way for some time. It is not probable that the mine will ship this year, and if it does the Duluth & Iron Range runs close by. The securing of the haul was quite a plum for the Missabe when the contract was made, but is of no value now. The line was about half completed and 400 men were at work upon the extension.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Kimberley.—P. L. Kimberley has secured the fee of the small Columbia Mine at Virginia, containing about 4,000,000 tons partly Bessemer, and the fee of 3 forties close by that were explored a few years ago and found to contain a small deposit of high-grade Bessemer ore, and the lease of the Itasca in section 20, T. 58, R. 19, which latter he bought for $68,000 a few weeks ago, as then noted in this correspondence, and has turned them over to the Pittsburg & Lake Angeline Mining Company (Jones & Laughlins, Limited) for exploration and purchase. The largest deposit of the 3 is the State lease, which is good non-Bessemer ore containing about 10,000,000 tons, and the 3 may have double that, perhaps. The price said to be wanted for them is large. For these three small deposits, together with the Antoine Ore Company and the Keel Ridge, of the Menominee Range, it is said Mr. Kimberley wanted $5,000,000 a few days ago.

A large development company is being organized at Cleveland to take over a number of explorations in T. 58, R. 19 and elsewhere, and work will be carried along there at once. Some drills have already been secured.

Colonial Mining Company.—This company's Hale Mine is being pumped out and will be worked at once. It has been flooded since a heavy storm last fall. It is intended to mine 50,000 tons this year.

Commodore Mining Company.—This company is shipping to dock.

Diamond drill exploration west of and near Hibbing are showing a large high-grade deposit, which will probably be sold for a large sum this week, negotiations being now under way.

E. C. Pope Iron Company.—This company has secured options on lands in southeast 58-18 and will explore at once.

Genoa Iron Company.—This mine has begun shipments.

Penobscot Mining Company.—This company is shipping quite heavily. Considerable new ground is being opened. The flow of water remains about 4,500 gal. a minute. There are about 90,000 tons in stock.

Republic Iron and Steel Company.—This company has closed a deal for an interest in some lands in the s. e. part of T. 58, R. 18, that have been turned down by mining companies for years. The company pays a small amount down in advance royalties and will explore as soon as possible.

Stockpiles at Hibbing are very large, amounting at the Hull to more than 250,000 tons, at the Rust to nearly 100,000 tons, and at the Burt and Sellers to large amounts, and shipments will commence at once. The Rust is opening a large number of rooms and will be in shape to mine very heavily this season. Its rooms are from 10 to 16 sets of timbers long and 3 sets wide.

Iron—Vermillion Range.

(From Our Special Correspondent.)

The Mahoning Ore and Steel Company is continuing its explorations in T. 63, R. 13, and will probably keep at it for some time.

The explorations of the Oliver Iron Mining Company at Mud Creek, east of Tower, that have been in progress for a year or two with diamond drills, etc., have been stopped and the machinery taken away. The understanding is that the work has been futile. Many thousand dollars have been spent.

Chandler.—This company is shipping smartly.

Pioneer.—This mine has begun shipping to dock both from shaft and stockpile.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—There was a remarkably strong market for both zinc and lead ores last week and the price of zinc ore advanced on all low and medium grades $1 per ton, while the best grades sold at $29.50 per ton, an advance of 50c. Lead dropped 50c., selling all the week at $22.50 per 1,000 lbs. The ore from the La Tosca and Morning Star mines at Oronogo sold at $29.30 and the Eagle ore from the Arkansas lease at Belleville at $29. The roads were exceedingly muddy, making ore hauling difficult. Following is the turn-in by camps of the Joplin District for the week ending April 30th:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,353,310	338,290	$40,557
Galena-Empire	1,753,410	202,360	25,594
Carterville	3,254,240	291,030	44,599
Webb City	902,960	56,070	12,088
Oronogo	544,440	74,740	8,971
Aurora	950,780	24,790	10,501
Carl Junction	396,680	.....	5,157
Zincite	270,640	14,190	3,708
Neck City	219,200	.....	3,069
Granby	356,000	43,000	4,390
Spurgeon	193,550	100,430	4,399
Ash Grove	92,000	101,000	3,422
Central City	124,550	6,100	1,632
Cave Springs	73,410	17,340	1,271
Roaring Springs	177,880	8,310	1,222
Duenweg	.....	51,160	1,151
Carthage	59,070	.....	768
Peoria	20,470	1,980	244
Total	11,742,590	1,330,790	$172,743
Total 16 weeks	159,599,750	20,160,090	$2,362,592

Zinc value for week, $143,807; lead, $28,936; zinc value 16 weeks, $1,904,576; lead, $458,016.

During the corresponding week last year, best grade of zinc ore sold at $33.50 per ton and lead at $27 per 1,000 lbs. The zinc sales were less

than last week by 470,770 lbs., the lead sales greater by 99,100 lbs., and the value greater by $28,806. For the first 16 weeks last year the sales were less by 7,390,530 lbs. of zinc and 2,303,120 lbs. of lead, but the value was greater by $456,134. Compared with the previous week, the sales show an increase of 747,820 lbs. of zinc and 220,590 lbs. of lead and of $12,689 in value.

Albion Mining Company.—This company has incorporated, with a capital stock of $50,000, divided into shares of the par value of $10. Royal B. Young, of Boston, one of the stockholders, who has been acting as superintendent, drops out, as well as other Eastern shareholders in the reorganization. Charles M. Ludden, of Boston, holds $49,940 worth of stock, the other $60 being divided among James F. Gallagher, of Boston, Ernest Cooper, of Alba, J. L. Naulty, Richard Martin, D. M. Roper and C. B. Dahlgren, of Carthage. The ground of the company is being prospected with a drill and a new shaft is being sunk.

Gobbler Mining Company.—The Gobbler Mill at Wentworth, owned by Frank Rockfeller, of Cleveland, O., has been crowded to its utmost capacity for the past 2 or 3 weeks to handle the output, and April 16th the boiler blew up and wrecked the engine. Week before last the mines produced 14 cars of ore, but the output is now cut down by repairs.

Missouri-Kansas Zinc Miners' Association.—Some of the directors have returned from New York and Boston, where they have been consulting the managing directors of Eastern companies working Joplin mines in regard to exporting ore, and they report that a majority of the companies will join in the movement.

St. Francois County.

(From Our Special Correspondent.)

The Penicaut and St. Joe lead companied have started their diamond drills for the season, while the Iron Mountain Company has several drills at work on recently acquired options.

St. Joe Lead Company.—This company has purchased the 40-acre tract from the Brockmeyer syndicate for $40,000. This tract adjoins the Hoffman tract, on which the St. Joe Company is sinking its No. 12 shaft in Big River Valley.

MONTANA.

Eight-Hour Law.—About 900 of the 1,100 employees of the Boston & Montana smelters at Great Falls are now on 8-hour shifts, without reduction in wages. Shifts will be from 8 a. m. to 5 p. m., 4 p. m. to midnight, and midnight to 8 a. m. All outside employees will be on 9-hour shifts, working from 8 a. m. to noon and from 1 p. m. to 6 p. m.

The 8-hour law is now in effect at the East Helena Smelter. When in full effect the force will be increased from 660 to over 800. Men's wages were reduced from $2.50 for a day of 12 hours to $2.20 for a day of 8 hours, the increase in rate per hour being from 20.83c. to 27 1/22c. The change of system will be completed by May 1st.

Cascade County.

(From Our Special Correspondent.)

American Smelting and Refining Company.—The Great Falls plant, which was to close for an indefinite period on April 15th, has received orders to keep running. It seems the trouble was a question of freight rates and has been settled satisfactorily.

Diamond R.—The new addition to the concentrator it is expected will be in operation next month.

Florence.—A force of 40 miners are working at this Neihart property. Shipments are going to East Helena.

Galt.—This property at Neihart is worked in blocks by tributers.

Deer Lodge County.

(From Our Special Correspondent.)

Emery.—Erwin Higgins, of Deer Lodge, who has operated this property situated in the Sozel District for some time under a lease, has become owner of 31/32 of it. The mine has been a steady producer for 10 years and has paid good dividends.

Palmer.—This iron property, 7 miles above Anaconda, is shipping 30 tons of iron for flux to Montana Ore Purchasing Company. The ore will average 85% iron oxide, or 62% metallic iron.

Jefferson County.

(From Our Special Correspondent.)

Basin Gold and Copper Company.—The personal property of this company was sold by the sheriff last week to the judgment creditor, H. L. Frank, for $2,500. The Hope Mine and the balance of the assets are to be sold during May to satisfy other judgments.

Crystal.—This property, 8 miles from Basin, owned by the Beattie Brothers, of Helena, is to be operated under a lease and bond for $40,000 by parties in Butte. The ore carries 3% copper.

Madison County.

(From Our Special Correspondent.)

Galena.—This property, 4 miles from Norris, belonging to Peter Jackson, is under lease and bond to Alex McKinnon for $30,000, who has tapped the lead in a crosscut tunnel. A good grade of shipping ore, mostly gold, is being opened. The ore body is promising.

Pole Creek Placer.—A. W. Tanner, of Red Bluff, who owns these diggings, has under consideration a proposition to sell to an Eastern syndicate. Besides the gold this property produces a large quantity of garnets and some spinels.

Red Chief.—The new concentrator is running successfully. The mill is well equipped and is thoroughly up to date. Geo. Sherman, of Red Bluff, is the manager.

Revenue.—This property at Richmond Flats, 6 miles from Norris, is the pioneer of successful cyaniding of Montana ores. A mill erected in the early 90's has been grinding away constantly for years. The property is under the management of Roger Knox, who also is managing the Monitor Mine adjoining. The mill has a capacity of 50 tons per day.

Park County.

Bear Gulch Mining Company.—This company is working a group of 15 claims at Jardine with A. C. Jardine as manager. The 20-stamp mill is fitted up with 3 3-ft. and 3 4-ft. frues, and 6 6-ft. Johnson vanners. The concentrates are to be treated by the cyanide plant that will be put in this summer. It has been determined to drive a tunnel through the entire hill to prospect the intermediate ground and reach some of the company's properties on the other side.

Silver Bow County.

Anaconda Mining Company.—According to press despatches all the company's mines at Butte began running full force on April 25th.

(From Our Special Correspondent.)

Montana Ore Purchasing Company.—A fire distroyed the boiler house, engine room and sampling works at the smelter. The loss is estimated at $75,000, fully insured. Mr. Heinze expects to have the works in operation within 30 days. Assistance was rendered by the officers and employees of the Butte & Boston and Boston & Montana companies in helping subdue the flames. The convertors and reverberatories are not damaged and the fires will not be drawn from either. Work of repairing the damage started immediately.

Ophir.—S. H. Clark, of Butte, acting for eastern people, is taking the water out of this silver property in the southern part of the city. The shaft will be sunk deeper. The bond is for $150,000.

West Olive Branch.—This silver property, about ¼ mile west of the Colorado Smelter, is being operated under a lease and bond by Victor Hoffman & Company who have opened up a body of silver ore which is shipping somewhat better than 100 oz. silver and some dollars in gold. They have placed machinery thereon and will sink the shaft 100 ft. deeper.

NEW MEXICO.

Grant County.

Atlantic.—This mine at Pinos Altos has closed down indefinitely.

Helen Mining Company.—This company, at Graham, is working about 30 men in further development at the Confidence Mine preparatory to starting up the mill. The mill is being thoroughly overhauled and a new 300-H. P. Corliss engine installed. There is said to be plenty of water now in the pipe line.

Husten & Thomas.—This group of 4 claims, about 2½ miles west of Pinos Altos, has been taken under bond and lease by William Kent and H. L. Hollis, of Chicago. The ore runs in silver and lead. About 12 men are busy under Frank J. Buck.

Pinos Altos Gold Mining Company.—This company, which employs 125 men, has recently adopted the policy in letting contracts for the taking out of the ore in the stopes. It is understood that another Huntington mill will shortly be installed, thus increasing the capacity a third. The Gillett shaft has been sunk to 900 ft., where levels are being run. This is the deepest working in Grant County.

Silver Cell.—The Dimmick Brothers have been making running tests on their new 5-stamp mill on this group at Pinos Altos, and have day and night shifts at work in the mine.

OHIO.

Coal Miners' Strike.—The coal miners of Belmont, Harrison and Jefferson Counties, Ohio, and those of Marshall, Ohio, Brooke and Hancock Counties, West Va., forming the Fifth Ohio Sub-District of the Miners' Association, went out on a strike April 22d, because of the failure of the committees of miners and the operators' committees to reach a settlement as to the scale of wages. It is estimated that 5,000 miners are affected.

Coal Production.—Statistics which will appear in the annual report of the State mine inspector show a very large increase in the number of mining machines in use. In 1899 75 mines used 280 machines. In 1900 356 machines were used in 280 mines. The total number of men employed in 1900 to operate machines was 8,384, and 1,117 were employed to follow the machines. The total number of men employed in the Ohio mines in 1900 was 24,293, as compared with 21,531 in 1899, a gain of 2,762. There were 6,497 day hands employed in the mines in 1899 and 7,409 in 1900, a gain of 912.

Of the total output of Hocking County for 1900, 2,311,679 tons, 2,271,846 tons were mined by machines. In Athens County of the total output of 2,594,859 tons, 2,317,478 tons were mined by machines.

OREGON.

Lane County.

Calapooia & Blue River Mill and Mining Company.—At the annual meeting at Brownsville the following officers were elected. J. F. Venner, president; C. E. Stanard, secretary; J. H. Glass, treasurer; N. B. Standish, superintendent of mines; and N. B. Standish, C. H. Cable, J. F. Venner, W. W. Robe and W. B. Blanchard, directors. This company owns claims in the Blue River District. It is probable that a 10-stamp mill will be put in on the property this season.

Uncle Sam Mining and Milling Company of Oregon.—At a recent meeting in Eugene, Samuel Brewbaker was elected president, Robt. R. Brewbaker, vice-president; Geo. H. Yerington, secretary; H. A. Tromp, treasurer. The following were elected directors: Samuel Brewbaker, Geo. H. Yerington, Robt. R. Brewbaker, H. A. Tromp and Marion A. Brewbaker. The capital stock of the company is $2,000,000 divided into 2,000,000 shares of $1 each. The company owns 4 claims in the Blue River District on the west side of Gold Hill. The company expects to begin erecting a mill about May 1st.

PENNSYLVANIA.

Anthracite Coal.

Seneca Coal Company.—This company, at Pittston, has constructed a large central boiler plant. At the Coxey Shaft a large dynamo is to furnish power for hauling coal from the Coxey to the Twin Shaft. This system of haulage is also to be extended to the Covey Shaft. Conveyors at the head will carry the coal to the breaker. Self-dumping cages will also be used, doing away with headmen at both the Coxey and Twin shafts.

Bituminous Coal.

Webster Coal and Coke Company.—The terms of transfer of the extensive mining interests of James L. Mitchell, of Philadelphia, to this company have been agreed upon. By the terms of the agreement the Webster Coal and Coke Company secures the operative and the mineral rights of half a dozen mines between Gallitzin and Johnstown, the cash price being $1,000,000.

(From Our Special Correspondent.)

At the mine opening on Chestnut Ridge, almost at the southwestern corner of Donegal Township in the Ligonier Valley of Westmoreland County, a large sample of coal was taken and coked at one of the plants in the Connellsville Region, about 7 miles distant. This opening is on the outcrop of the vein, which dips toward Four Mile Run in Donegal Township, and the coal probably underlies the entire Township embraced between Four Mile Run and Indian Creek. The coal has the structure of the Pittsburg seam, but is no doubt the upper bed of the Lower Productive; it ranges in thickness from 6 ft. 9 in. to 7 ft. 6 in. at this opening, and is of excellent quality, the coke as tested having shown a very good analysis. On the Laurel Hill side of the valley the Clarion coal shows an excellent structure, the vein being 5 ft. 3 in. and of superior quality. Between Four Mile Run and Indian Creek at several places the black fossiliferous limestone of the Lower Barren measures is exposed, proving that both seams of coal underlie the country between. This is another of Pennsylvania's coal areas, containing coking and steam coals that has been much neglected.

Stewart Coal Company.—This company at Landstreet on the Baltimore & Ohio Railway's Somerset & Cambria Branch is now operating on a large scale. It has installed electric haulage and air coal cutting machines, and has a complete plant.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Company.—L. P. Woodbury, of Chicago, Ill., has purchased an interest in this company's stock and will act as vice-president and general manager. The directors have voted to sell 200,000 shares of stock for development purposes.

Newark.—A good body of ore has been encountered in this mine northwest of Custer.

New York.—This mica mine west of Custer is owned by C. A. Dow, of Sioux City and the

product is all taken by the Sills-Eddy Mica Company, of New York. In the center of the main quartz ledge a vein of tin ore has been found about 2 ft. wide.

Lawrence County.

(From Our Special Correspondent.)

Golden Crown.—About 200 oz. of gold were cleaned up from a 2-weeks' run at the Golden Crown Mine in the North Lead District. The mine and mill are owned by Mike McAllen and associates, of Lead. This property has been bonded to H. J. Mayham and associates, of Denver. The cyanide mill is being enlarged to 50 tons.

Golden Reward Company.—This company will sink additional shafts near Englewood on the southern end of the Bald Mountain property.

Homestake Company.—The new 1,200-ton cyanide plant is completed. It is believed that the plant will be able to run full capacity at the start. The Caledonia Mill is running full time and the DeSmet Mill will start about May 1st. This mill has been leased by the Homestake Company until it is needed by the DeSmet Company. The DeSmet Company is erecting a new steel hoist and proposes to sink a deep shaft in the DeSmet Mine, where the present lowest workings are not more than 200 ft. The Homestake Company has installed a plant at the pumping station on Spearfish Creek, costing $5,000, for softening the water used in the big boilers. The new electric light plant has been installed there also.

Portland Company.—This company is making a success with its 50-ton cyanide plant at Central City.

Spearfish Mining Company.—This company will double its capacity as soon as the roads become better. It is now said to be milling with a cyanide plant from $20,000 to $25,000 per month. The main shoot of ore has a face of 19 ft.

Pennington County.

(From Our Special Correspondent.)

Golden Slipper.—J. B. Safford and associates, of Chicago, will pump out the lower workings of the Golden Slipper Mine east of Hill City in May. A new hoist is to be installed. The main shaft is down 300 ft. and considerable drifting and cross-cutting have been done. The ledge is about 3 ft. wide.

Gopher.—It is reported that another ledge of free milling ore has been discovered by drifting from the main shaft in this mine 3 miles north of Hill City. The mine is owned by the Gopher Mining Company, of Minneapolis.

Hornblende District.—At the Yellow Bird Mine a ledge of gold ore is being followed. A steam hoist is in place. The Black Hills Copper Company, of Benton Harbor, Mich., is opening upon a ledge of gold and copper ore and the Copper Cliff Company, of Ironwood, Mich., is preparing to ship 2 car-loads of graphite to Chicago for a test. A large ledge of graphite of very pure quality has been opened up.

Spodumene.—The Century Chemical Company, of New Jersey, has purchased 2 mining claims of Reinbold & Company for a reported consideration of $1,000. The ground contains spodumene, and is located near Keystone.

TEXAS.

Jefferson County.

Oil Discoveries.—The excitement in the region about Beaumont has increased and speculation in farm lands is on a wild boom. Gusher No. 7 has come in and one or two more are due. Everything about the field, the geological conditions, the pressure and heavy flow of the wells indicates that the field is likely to be large and may easily rival the Baku District in Russia. Oil companies are being incorporated by the score. J. C. White, who is said to own 114,000 acres of land in one tract in the oil field, is to close a deal for the sale of the land for $3,500,000 to representatives of the Standard Oil Company. This land was worth not to exceed $4 an acre previous to the oil discovery. The tract borders for 30 miles on the Gulf Coast.

UTAH.

Piute County.

(From Our Special Correspondent.)

Annie Laurie.—Manager Filer visited Salt Lake last week with 380 lbs. of $40 cyanides in his strong box.

Salt Lake County.

Victor M. Clement has brought suit against Capt. J. R. De La Mar in the district court. Enos A. Wall, the vendor of a group of mining claims in Bingham to Capt. De La Mar, and W. S. McCornick, the holder in escrow of a deed of transfer, are made partly defendants. The complaint alleges that De La Mar agreed to give Clement an eighth of the net profits realized from the purchase, operation or sale of any mining property to which the plaintiff drew defendant's attention and reported favorably upon.

Clement declares that he invited De La Mar's attention to the merits of the Wall Group and in pursuance of his report thereon De La Mar purchased ¼ interest in the property from Col. Wall, paying therefor $50,000 on May 9th, 1899. Further, it is alleged that Capt. De La Mar, on March 7th of this year, contracted with Wall for the sale back to him of the ¼ interest purchased 2 years ago for $100,000, and that the deed is in escrow with W. S. McCornick at his bank, deliverable on or before June 7th. Captain De La Mar, it is charged, denies that this purchase and sale comes within the terms of the agreement.

Washington County.

(From Our Special Correspondent.)

Dixie.—The company ships a car of 40,000 lbs. of copper bullion this week, while Manager Snyder reports a long run of high-grade ore on hand at the smelter and that the smelter is to be kept in commission during the balance of the month.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Ben Hur.—Stoping continues on 230-ft. level, but no ore is being hoisted, the platform being full of ore awaiting shipment to the mill.

Fisher Maiden.—This group in the Slocan has been bonded by the Bank of Montreal to the Spokane Syndicate under the management of J. A. Clark. The property, which has been tied up for the past 2 years in litigation, is considered valuable.

Ground Hog Basin.—About 75 miles north of Revelstoke are a number of creeks which head in 5 depressions on the summits of the mountains, which have received the general name of Ground Hog Basin. High up in the basin the parent lodes, from which the placer gold below was originally derived, are found, veins of quartz running through the soft hydro-mica slate which forms the country rock. The gold is free in the quartz and is also free in the slate of the contact walls, as well as in the included masses of slate in the vein. Sulphides of iron occur in varying percentages, all carrying gold and some veins have been found consisting of almost solid iron pyrites. A large number of claims have been staked in the basin and on the divide between the heads of McCullough and French Creek. Capital in London, Montreal and Vancouver is reported interested.

Lone Pine-Surprise.—The new tunnel is in 72 ft.

Mountain Lion.—The shaft is down 325 ft. below the adit and a station is being cut at the bottom. When that is finished the shaft will be sunk an additional 100 ft., and the 3 lowest levels will be opened.

No. 1 Consolidated.—A new tunnel is started. Superintendent reports small stringers of quartz coming in at the face.

Princess Maud.—This property is in most satisfactory condition. The cross-cut tunnel intersected the vein at 380 ft. A drift runs on the vein 88 ft. to the winze and thence 120 ft. to the end. The quartz averages 2½ ft. wide and swells in places to 5 ft. The winze is down 300 ft. below the tunnel level. A small bunch of rich ore was encountered 30 ft. down. Levels have been opened 100, 200 and 300 ft. below the adit. On the 100-ft. the quartz runs 4 to 5 ft. wide, but carries no pay value. On the 200-ft. level a drift has been driven 57 ft. north and another 67 ft. south, the quartz carrying no special value. On the bottom level a drift has been driven south nearly 70 ft. with similar results. The north drift runs on 3 to 5 ft. of quartz for 90 ft., some being of good value. From 90 ft. in a pay streak 12 to 20 in. wide shows values from $9 to $10 upward, the increase being principally in silver. The last sample ran 70 oz. to the ton. It is possible this ore shoot may go to surface.

Quilp.—Nearly all of the high-grade ore that was raised has been shipped to the Grand Forks Smelter. The company has decided to suspend operation until the ore can be disposed of to better advantage than heretofore.

Republic Power and Cyaniding Company.—The Granite Creek bridge will be completed within a week. All of the 6 Griffin grinders are running satisfactorily and the mill is now crushing 200 tons of ore a day. Two roasters are running and ore is being spread over the hearth bed of the third. Robert Jaffray, president of the Republic Consolidated Gold Mining Company, from Toronto, Ont.; E. L. Pease, manager of the Royal Bank of Canada, from Montreal, Que., and C. E. Neill, manager of the Vancouver, B. C., branch of the bank, are visiting Republic, looking over the mill and the Republic and Quilp mines.

Trade Dollar.—The new shaft is down 53 ft.

WISCONSIN.

Iron—Gogebic Range.

Dunn Mining Company.—This company, of Cleveland, O., has sunk a shaft 300 ft. deep about 3 miles east of Iron Belt, near the Upson prospecting on the old Iron property, where work was suspended in 1893. The company has 25 men working on 8-hour shifts.

FOREIGN MINING NEWS.

ASIA.

India—Mysore.

Colar Gold-field.—The production of gold by the mines in this field in March is reported at 42,727 oz. crude. For the three months ending March 31st the total was 126,320 oz., against 122,178 oz. for the corresponding period in 1900, and 100,243 oz. in 1899. The total this year was equal to 113,688 oz. fine gold, or $2,349,931.

AUSTRALASIA.

Queensland.

Mount Morgan Gold Mining Company.—This company reports for the month of March 23,114 tons of ore treated by chlorination. The yield was 17,462 oz. gold, giving an average of 0.76 oz. to the ton treated.

Western Australia.

The gold output for March is reported at 127,846 oz. crude, an increase of 1,796 oz. over March, 1900. The statement is based on the gold exported and that sent to the mint at Perth. For the three months ending March 31st the total was 402,040 oz. crude, as against 387,719 oz. for the corresponding period last year; showing an increase of 14,321 oz., or 3.7%. The output for the three months this year was equal to 359,703 oz. fine gold, or $7,435,055.

CUBA.

Salamon.—The controversy over this copper mine at Las Minas has been decided in favor of the present holders, Gustavus Salamon and Hugh Reilly, of New York. The land on which the mine is situated was purchased by them in 1889. After they had expended $30,000 in developing the property, other parties claimed possession by an old denouncement. The courts have decided that this denouncement did not cover the Salamon Mine, but rather an asphalt mine in the vicinity.

MEXICO.

Oaxaca.

Los Reyes Gold Mining and Milling Company.—This company, with $1,250,000 capital, was recently organized in Detroit, Mich., with Cameron Currie, Geo. H. Russell, H. C. Potter, C. A. Ducharme, Frank J. Hecker, C. B. Warren, G. H. Hopkins and W. C. McMillan, of Detroit, L. E. Rowley, of Lansing, Mich., and J. L. Grandison, of Oaxaca, as directors. Mr. Grandison will be resident director, Mr. Russell treasurer and Cameron Currie & Company fiscal agents.

The Los Reyes group comprises 2 mines, the Los Reyes and the San Rafael, both containing 295 acres and situated 25 miles from Oaxaca. The mines have been worked by Mexicans and it is said have proved rich. It is claimed that there is more than $400,000 worth of gold ore in sight at present. A 10-stamp mill and a sawmill are being erected. Much of the ore is said to be free milling.

Sinaloa.

(From Our Special Correspondent.)

Sivirijoa Mining Company.—This company has been organized in Salt Lake to open up the famous old San Antonio and Sivirijoa mines near Fuerte. It has not been worked for over 100 years. The company intends to sink a new shaft and tap the vein below the old workings. Chicago and Salt Lake parties are interested. O. R. Nelson, Chicago, is president; G. C. Snyder, Salt Lake, is secretary.

Sonora.

Descubridora.—Eddy Brothers, of El Paso, Tex., are stated to have purchased this mine, near Conejolos, said to be the largest copper mine in the republic. The new owners will begin at once to develop the property.

SOUTH AMERICA.

Ecuador.

Playa de Oro Mining Company.—The Appellate Division of the New York Supreme Court has handed down a decision in the case of the Playa de Oro Mining Company vs. Otis S. Gage. The company brought suit against Gage and others to have an assignment and transfer of 5,000 shares of the company's stock made by Chas. G. Francklyn to Gage declared void, to have an account of the shares and the proceeds taken, to have the rights of certain other parties determined, and to have Gage pay the company what may be due. The court says in its decision that the action is constructed in such a way as to entitle the plaintiff to recover only upon proof of fraud on the defendant's part in the procurement of the 5,000 shares cited. "The relationship between the company and Gage and other shareholders and directors are very peculiar and the proof shows an exceedingly loose administration of the company's affairs, particularly with reference to its capital stock and the uses to which some of the shares

were applied." The decision, however, upholds a judgment in favor of Gage dismissing the complaint upon the merits and establishing a counter claim of Gage and requiring that the company transfer to Gage the shares in dispute. The judgment also dismissed the counterclaims and awarded costs and an additional allowance to Gage.

COAL TRADE REVIEW.

New York. Apr. 26.

Anthracite.

The hard coal trade is, on the whole, in better shape than is usual at this time of the year, and all indications are that the April shipments will be larger than anticipated. A backward spring is in part responsible for the demand, but the chief cause of the buying is probably the new schedule of prices, with graded discounts, while the "community of interests" in the coal roads makes it probable that the discounts will be maintained. Buying is pretty well distributed. There is nothing doing in anthracite at the head of the lakes, there being practically none there to sell. In Chicago territory business is light, pending the opening of lake navigation. On account of the engineers' strike, shipments will not start from Buffalo before May 10th, even if navigation opens before that. The vessel owners' association is still firm in its attitude toward the engineers, the strike virtually being simply for the recognition of the engineers' union. The United States Steel Corporation controls a large number of vessels that are not likely to bother with coal unless rates are high. Coal carrying will virtually be done by outside craft; these have formed an association and are trying to hold rates to 50c., while coal shippers want 40c. Owing to the ore-carrying fleet not caring for coal from Buffalo, the distribution of return cargoes is now such that there is no excess for the head of the lakes; consequently rates from Buffalo to Chicago are the same as to Duluth. A 40 or 50c. rate from Buffalo applies to all upper lake ports except out-of-the-way points.

In the East trade is quite good. There has been a good demand from points beyond Cape Cod. Bituminous shippers, in fact, accuse anthracite buyers of being so eager to get coal forward as to keep up coastwise vessel rates when a 10c. drop was expected, thus offsetting the April discount of 10c. as compared with May. This is denied by anthracite sales agents at New York, who say that long-continued bad weather is greatly delaying coastwise movements, so that arrivals at points beyond Cape Cod are lighter, not heavier, than a few weeks ago. Retail buying at Boston, New York, and Philadelphia is unusually good for this time of the year.

The April prices for free-burning white ash coal f. o. b. New York Harbor ports are: Broken, $3.50; egg, $3.75; stove and nut, $4.

Bituminous.

The Atlantic seaboard soft coal trade continues dull. A considerable amount of coal has accumulated at the shipping ports and some of the lower grades are reported being offered at below the regular schedule prices. The slack demand is attributed to various causes, but there is really less industrial activity at many points than last year and plants using water power have little fear of the usual summer drought. Both these causes cut down buying. As a result contracts for the year are closed slowly. A few are closed every day, but a great number are still open.

In the far East trade is very quiet. A few first orders on new contracts are on the market. There is much difficulty in getting vessels, owing to the continued foul weather. Trade along Long Island Sound is better than it was. New York Harbor trade is quietly taking its usual tonnage. All-rail trade has fallen off considerably and consumers seem to be changing about and trying different coals, picking and choosing.

Transportation from mines to tide is slow, being impeded by the loaded cars strung along the main-line roads. Car supply at the mines is regulated by the dispatch given by individuals at the shipping ports. The railroads have placed a number of embargoes on individual shippers on account of delays in unloading and one port is said to be embargoed entirely to all shippers.

In the coastwise vessel market fogs and high northeast winds have held up a great fleet of loaded schooners and barges at points west of Cape Cod. Vessels at the shipping ports are scarce and coastwise freight rates are firm. We quote current rates from Philadelphia as follows: Boston, Salem and Portland, 70c.; Providence, New Bedford and the Sound, 60@65c.; Wareham, Lynn and Newburyport, 80@85c.; Portsmouth, 75c.; Saco, 90c. and towages; Bath, 75@80c.; Gardiner, 80c. and towages; Bangor, 90c. Rates from the farther lower ports are 10c. higher.

Birmingham, Ala. Apr. 22.

(From Our Special Correspondent.)

The Alabama coal trade is not as active as it has been. Work is slack at some mines. Production is good but not what it has been. There have been no reductions in prices. Some of the operators in this State say that their conditions are still good and that they are having no trouble in selling all the coal they can mine, but in other circles reports are not so favorable. The demand for pig iron assures a steady production.

It is believed that there will be good work, about ¾ time, during the entire summer at the mines, though there are indications that the new wage scale will not be agreed on easily.

Cleveland, O. Apr. 24.

(From Our Special Correspondent.)

The coal trade has taken on an added interest this week in the chartering of the first boats for the movement of that commodity up the lakes. So far the shippers have been unable to fix a rate with the vessel men, but have taken the tonnage subject to the going rate at the opening of the season of navigation. From the other rates that have been made on the lakes so far this year it is figured that the charters will be made at about 40c. a ton to Lake Michigan. The other rates will be scaled upon this one, Duluth bringing about 35c. The sales of coal so far have not been heavy in the Northwest and as there is no great demand for the product there the railroads in this territory have not been asked to begin the shipment to the docks along Lake Erie. The channels to the upper lakes are open now save at Port Huron, where some delay is occasioned in breaking through an ice jam, but the beginning of the shipping season promises to be some time in the future. It is hardly possible that any coal will be moved for 10 days or 2 weeks, owing to labor trouble with the men on shipboard and in the harbors.

Pittsburg. Apr 24.

(From Our Special Correspondent.)

Coal.—The flood caused considerable damage, but no coal was lost. This is unusual, as in past years a flood always meant the sinking of boats and barges of coal. One reason for this was that but little coal had accumulated in the pools and harbor. Coal shipments to Southern ports were resumed to-day. Three tow-boats went out each taking 12 coal boats and 6 or 7 barges. The mines in the Monongahela Valley are in full operation again to-day and the work of loading craft will be rushed with all possible haste. The Pittsburg Coal Company, the railroad coal combination, began this week to ship coal to Cleveland for the Northwestern trade. The lake season has opened and shipments will go forward now as rapidly as possible. It is believed the shipments to the northwest this season will exceed last year by about 2,000,000 tons.

Connellsville Coke.—The coke market is unusually strong and prices are likely to advance about July 1st. At present furnace coke is quoted at $2 and foundry remains at $2.50. Of the 21,477 ovens in the Connellsville Region 19,968 are active and 1,479 are idle. The production last week was 233,948 tons, a decrease of 936 tons compared with the previous week. The shipments aggregated 11,340 cars, distributed as follows: To Pittsburg and river tipples, 3,504 cars; to points west of Pittsburg, 5,508 cars; to points east of Connellsville, 2,328 cars. This was an increase of 200 cars.

Foreign Coal Markets. Apr. 26.

There is nothing new as to orders for foreign shipment. The chief topic of discussion has been the proposed export tax of 1s. a ton on coal exports proposed by the British Government. There is some disposition to exaggerate its importance. Of course, it is practically an increase of 24c. a ton on British export prices, but this is far less than the fall in prices during the past year has been.

There is nothing new in the French or the German trade. South American business is moderate only.

To show what is paid for coal in Paris we quote from the "Echo des Mines" as follows, all prices being per metric ton, and the French rates converted into American currency: Welsh anthracite, $13.90; Charleroi lump, $12.35@$13.12; "cooking" coal, $9.46; briquettes, $11. For steam coal some prices are: Mons lump, $11; run-of-mine, $7.91@$8.69; washed fine coal, $8.69; blacksmiths' coal, $9.07; steam briquettes, $8.69@$8.82. For coke prices are: Ordinary foundry coke, $12.93; broken coke, $14.09; crushed coke, $15.25.

Messrs. Hull, Blyth & Company, of London and Cardiff, report under date of April 13th that although the miners were expected to resume work on Thursday it will not be till next week that work will be in full swing again. Prices for large are maintained, while smalls are particularly firm. Quotations are: Best Welsh steam coal, $4.20@$4.32; seconds, $4.08; thirds, $3.84; dry coals, $3.72@$3.84; best Monmouthshire, $3.72@$3.84; seconds, $3.36@$3.60; best small steam coal, $2.28; seconds, $1.92; other sorts, $1.56.

The above prices for Cardiff coals are all f. o. b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f. o. b. Newport, exclusive of wharfage, and are for cash in 30 days, less 2½% discount.

Tonnage is plentiful, and rates are easier all round. Some charters noted from Cardiff are: Marseilles, $1.95; Genoa, $1.86; Naples, $1.92; Port Said, $2.04; Singapore, $3.72; St. Vincent, $1.86; Rio Janeiro, $3.48; Buenos Aires, $3.12.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 552.)

New York. Apr. 26.

There will be no consolidation between the New Jersey Zinc Company and the General Chemical Company, as the anticipated advantages are doubtful; at least, so the joint committee has decided.

Heavy Chemicals.—Larger contract deliveries are noted. Export demand for bicarb. soda is growing. Bleaching powder has recovered, as "outside" makes are nearly all out of the market. We therefore quote the contract prices on bleach. American hyposulphite is weaker at $1.75 per 100 lbs., but foreign is unchanged at $2. We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2½c. per 100 lbs. less than quotations below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	80@85	....	85@87½
" 48%.	85@90	....	.....
Caustic Soda, high test....	$1.90@$1.95	.....	1.85@1.87½
powd., 60%.	.....	2.75	.....
70@74%.	.....	2.85	.....
98%.	....	3 25	3.75@4.00
Sal Soda	50	60	67½
"conc.	1.25@1.50	....	1.75
Bicarb. Soda..	1.05@1.10	.....	1.37½@3.00
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	....	2.00@2.10
other brands.	.....	....	1.90@1.95
Chl. Pot cryst	....	8.00@8.25	9.50@9.75
" powd.	....	8.25@8.50	9.75@10.00
....	....	....	.....

Nitrate of Silver.—The firmer bullion market has strengthened nitrate of silver to 40½c. per lb. in large lots.

Acids.—Contract deliveries are good for most acids, and more export inquiry is heard. In March and the three months of this year the exports of blue vitriol from New York were as follows:

Destination.	March.	Three months.
Argentina	51,750	240,825
Australia	2,420	2,420
Austria	440,343	2,117,741
Belgium	49,152	49,152
Bermuda	.....	400
Chile	.....	46,350
Cuba	1,312	1,412
France	441,612	609,788
French Africa	22,584	164,943
Italy	9,917,025	14,443,001
Mexico	.....	148,544
Netherlands	289,453	504,061
Nicaragua	.....	450
Nova Scotia	4,726	4,726
Portugal	742,972	1,263,123
Russia	304,835	304,835
Uruguay	9,000	20,700
Total, lbs.	12,277,184	19,922,471

Of the exports in the first quarter, this year, Italy received the largest quantity, about 73% of the total to all countries. The average invoice value of all exports in March was $4.56 per 100 lbs., which compares with $4.47 in February, and $4.36 in January.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No.8	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol.	4.50@4.75	Nitric, 38°	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°	4.37
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75
Aqua Fortis, 40°	4.12½	Oxalic	5.75@6.00
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 18°.	1.20	Sulphuric, 60°	1.05
Muriatic, 20°.	1.35	" bulk 50° ton	14.00
Muriatic 22°	1.50		

Brimstone.—Market is overstocked and weak. The "Jupiter," with about 5,000 tons, is expected daily. Spot best unmixed seconds are quoted at $21@$21.50 per ton, and shipments at $21@$21.25. Best thirds are $2 less. Cable advices report a higher freight market abroad. According to a dispatch recently received, a Philadelphia company is making arrangements to recover the vast deposit of sulphur from Mt. Makushim, an extinct volcano on Unalaska Island, British Columbia.

Pyrites.—Consumption is regular and prices unchanged. We quote per ton as follows: Mineral City, Va., lump ore, $4.90 per long ton, and fines $4.50. Charlemont, Mass., lump, $5.50 and fines $5. Spanish pyrites, 12c. per unit delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur; American from 42@44%.

Sulphate of Ammonia.—Gas liquor is weaker at $2.65 per 100 lbs. for spot and $2.60@$2.62½ for future shipments. The shipments to the United States from Great Britain in March are estimated at 1,123 long tons, making 2,182 tons so far this year, showing an increase of 795 tons as compared with last year.

Nitrate of Soda.—Very quiet. A few small sales on spot are reported at $1.85 per 100 lbs., while importers continue to quote $1.80@$1.82½, according to position. The foreign trade press is disturbed over the fact that producers had shipped 6,200,000 qtls. and loaded an additional 250,000 qtls. in the first quarter of this year, although the combination had previously agreed to limit exports during this period to the stocks on hand on December 31st, 1900, which amounted to 5,862,100 qtls. Moreover, the world's consumption shows a marked decrease as compared with last year, owing partly to the severe winter in Europe. The heavy arrivals on the Continent have burdened the market so that prices had to be lowered all round. Yet producers are receiving from 7@11d. (14@22c.) per qtl. more for their product than last year, although ocean freight rates have fallen from 8@10s. ($1.92@$2.40). No doubt we shall see the "combination" revising its tactics before long to conform with the deliveries and selling prices in the consuming markets. Perhaps it would be well also to study the increasing production of sulphate of ammonia and its growing consumption on the Continent, especially in Germany.

Concerning the Chilean market, we learn from Messrs. Jackson Brothers, of Valparaiso, under date of March 23, that for the first few days of the fortnight business in nitrate was more or less at a standstill, but after it became known that the deliverics in consuming markets during the first half of this month had been on a much larger scale than last year, so much so that the greater part of the falling off in deliveries during the months of January and February had been regained, a better feeling began to prevail on this side, resulting in a fair number of transactions, principally for May-July deliveries at 5s. 10½d.@5s. 11d. alongside. In the 96% quality two or three parcels for April-May shipment changed hands at 5s. 11d.@6s. 1½d. alongside, according to quality and date of delivery. The production during February amounted to 1.668,000 qtls., making a total of 3,921,000 qtls. for the present year, as against 4,848,000 qtls. in 1900. At the close, producers are inclined to raise their limits for forward deliveries, which nas put a stop to further business for the time being. We quote 95%, April-June, 5s. 10½d.; July-December, 5s. 11½d., and 96%, 6s. 1d. for April and 6s. 2d. for May-June, all ordinary terms sellers. The price of 5s. 10½d., with an all-round freight of 24s., stands in 7s. 9d. per cwt., net cost and freight, without purchasing commission. Reported sales for the fortnight are 738,000 qtls.

Saltpeter.—Crude is in limited demand and easier at $3.25@$3.35 per 100 lbs., while refined moves freely at $4.25@$5 per 100 lbs.

Phosphates.—Comparatively few large orders have been booked. In Florida the Peace River Phosphate Mining Company has been compelled to discontinue work at its mines until orders are more plenty. Tennessee miners report small shipments. South Carolina shows no demand for export, while domestic trade is featureless. In Alabama, near Prattsville, a good phosphate deposit is reported.

Little is doing abroad in foreign phosphates.

Phosphates	Per Ton F. o. b.	C. i. f. U'n'd Kingdom or European Ports. Unit.	Long ton.
*Fla. hard rock (77@80%)	$6.50@7.00	7¼@7½d	$11.12@11.70
*Fla. land pebble (68@73%)	3 85@4.00	6½@6¼d	8.58@8.75
*Fla. Peace River (58@63%)	2.50@2.75	6½@6¼d	7.35@7.50
†Tenn. rock 78%, export	3.25@3.50	6¾@7d	10.53@10.92
†Tenn. 78% domestic	3 00	.....	.....
†Tenn. 75% "	2.75	.....	.....
†Tenn. 70@72% "	2.00@2.50	.....	.....
‡So. Car. rock, crude	2.50@2.75	.....	.....
§So. Car. rock, dried	3.25	6d	7.00
Algerian, rock (63@70%)	.....	6½@7d	8.71@9.30
Algerian, rock (58@63%)	.....	6 @6¼d	7.20@7.80
Tunis, Gafsa	.....	6 @6¼d	7.20@7.88

* Fernandina, † Mt Pleasant. ‡ At mines. § On vessels, Ashley River.

Liverpool. Apr. 10.

(Special Report of Joseph P. Brunner & Co.)

Since our last report the Easter holidays have intervened and our markets have just resumed business again. There is practically no change to report in the position. Following are particulars of exports of chemicals for March, this and last year, as per Board of Trade returns just issued: Bleaching powder—Total shipments to all quarters, including U. S., 72,265 cwts. in March, 1901, against 148,291 cwts. in March, 1900; shipments to United States alone, 55,444 cwts. in March, 1901, against 121,839 cwts. in March, 1900. Soda compounds—March, 1901: Soda ash, 95,744 cwts.; caustic, 76,380 cwts.; bicarb., 19,640 cwts.; crystals, 14,054 cwts.; sulphate (saltcake), 55,881 cwts.; other sorts, 18,771 cwts.; total, 280,470 cwts., against 374,788 cwts. in March, 1900.

While the exports for last month of both bleach and sodas show an improvement as compared with shipments for February, there is a very marked falling off when compared with March, 1900.

Soda ash continues in fair request, quotations varying according to destination. Nearest range for tierces may be called about as follows: Leblanc ash, 48%, £5 15s.@£6; 58%, £6 2s. 6d.@£6 7s. 6. per ton net cash. Ammonia ash, 48%, £4 10s.@£4 15s.; 58%, £4 15s.@£5 per ton net cash. Bags 5s. per ton under price for tierces. Soda crystals are selling at £3 7s. 6d. per ton, less 5% for barrels, or 7s. less for bags, with special terms for certain favored markets. Caustic soda is in improved request and prices are steady as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.; 76%, £11@£11 15s. per ton net cash. Bleaching powder is still sluggish, but £7@£7 5s. per ton net cash is still about nominal range for hardwood, with special quotations for certain favored markets. Chlorate of potash is dull at 3⅜@3½d. per lb. net cash. Bicarb. soda is very steady at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages, also special terms for certain favored markets. Sulphate of ammonia is still drooping and £10 12s. 6d.@£10 15s. per ton, less 2½% represents about nearest spot value for good gray 24@25% in double bags f. o. b. here. Nitrate of soda is stil held for £8 15s.@£8 17s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quantity and quality, and a moderate spot trade is reported at the range named.

IRON MARKET REVIEW.

NEW YORK, Apr. 26, 1901.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Apr. 27, 1900. F'ces.	Tons.	Apr. 26, 1901. F'ces.	Tons.	From Jan., '00. Tons.	From Jan., '01 Tons.
An' racite & Coke.	260	283,350	225	289,325	4,805,202	4,503,438
Charcoal.	29	7,025	25	8,025	124,463	131,700
Totals..	289	290,375	250	297,350	4,929,665	4,635,138

The continued activity of the iron trade is shown in our local reports which follow. The marked feature of the week is the increase of $2 in the price of rails, which will make the quotation $28 per ton at mill for standard sections from May 1st. In some quarters this is taken as indicating that the policy of the United States Steel Corporation will be to raise prices. It is to be noted, however, that the increase will affect only a small part of the rail production of the present year. The orders already placed—including export requirements—reach a total between 2,400,000 and 2,500,000 tons, which will keep the mills busy through the year.

Birmingham, Ala. Apr. 22.

(From Our Special Correspondent.)

Demand for pig iron in the Alabama market is holding up pretty well, though not as active as it has been. Shipments are still heavy. A furnace has shut down for repairs at Oxmoor. It is stated that much of the iron on the furnace and warrant yards has been sold and is awaiting orders of the purchasers as to delivery.

Quotations seem firm. As far as can be learned, there are no indications that concessions are being made. The following quotations are given: No. 1 foundry, $11.75@$12.50; No. 2, $11.25@$11.75; No. 3, $10.50@$11; No. 4, $10@$10.25; gray forge, $10; No. 1 soft, $11.75@$12.50; No. 2, $11.25@$11.75.

A feature of the market is the excellent demand for finished iron and steel and the rolling mills are busy. There is still a good demand for steel. Five of the 10 open-hearth furnaces at the Ensley steel plant are in operation. Foundry and machine shop men report trade active.

Buffalo. Apr. 24.

(Special Report of Rogers, Brown & Co.)

The market is jogging olong at an ordinary rate, which is in contrast to the high pressure pace of last month, but somewhat of a relief to all concerned. The larger consumers have pretty much covered their requirements by contracts extending through the summer, so that business is now chiefly confined to the current wants of the trade. We quote below on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $16; No. 2, $15.50; Southern soft, No. 1, $16.50; No. 2, $16; Lake Superior charcoal, $18; coke malleable, $16.50.

Cleveland, O. Apr. 24.

(From Our Special Correspondent.)

Iron Ore.—A block of 2,000,000 tons of iron ore was placed this week by the United States Steel Corporation with Cleveland tonnage for lake transportation during the season. The rates paid are 80c. from Duluth, 70c. from Marquette and 60c. from Escanaba. The tonnage placed includes many of the boats that had been listed in the vessel pool and the result will likely be a breaking up of that organization for the season at least. The pool had decided to hold out for 90c. Since this one block was covered contracts have been made by other companies steadily and some big results are expected soon. The sales have continued at a lively pace at the prices fixed by the Ore Association, $4.25 on Bessemer and $3 on non-Bessemer ores. It is not expected that the lake movement will be started for 10 days or 2 weeks, as the engineers' strike is now in a complicated state and no boats are able to start out, although the channels are all open.

Pig Iron.—The sales of pig iron this week have been only moderate. The supply becomes more and more limited for delivery the first half of the year. Some sales are being made on a reduced selling price for the third quarter, with some contracts extending into the last quarter of the year. The prices remain as they have been, foundry irons alone showing strength. The prices are: Bessemer, $16.50; basic, $16; foundry No. 1, $15.50; foundry No. 2, $15. It is commonly reported in the trade that the efforts to form a combination of the Valley plants have failed.

Finished Material.—The old Merchant Bar Association has been reorganized and a definite understanding reached as to prices. The agreement now is to fix Bessemer bars at 1.40c., Pittsburg, and open-hearth at $1.50c. The demand for this material is said to be responsible for the united action upon the prices.

The demand for structural material seems to have been a leader this week, bridge building keeping up to the high pitch it has been for the last few weeks. The tonnage disposed of this week has been large. No change in the prices, all shapes holding firm at 1.60c., Pittsburg. The demand for billets is also on the increase and the supply no greater than it has been. Electric and some steam lines have been rushing to get under cover for rails.

Old Iron.—The business in scrap this week has been very satisfactory. The sales have been numerous and the aggregate tonnage large. The prices remain as quoted heretofore.

Philadelphia, Pa. Apr. 25.

(From Our Special Correspondent.)

Pig Iron.—Despite some sensational reports the past week has been one of comparative quiet. The consumption of iron is very large and increasing, but except for certain brands there is no anxiety among large consumers to enlarge their engagements. A good many foundrymen and stove-makers and a few who use basic iron have shown a disposition to buy more iron, but as only inferior foundry can be had at any concession not much has sold. Buyers of forge iron have not been active. The entire market, however, is ready to run away or crowd in and buy as circumstances may seem to warrant. There is no change in quotations.

Steel Billets.—Rumors all sum up in the fact of an enormous demand, oversold conditions, advancing tendency despite cheaper ores and sales at figures in some cases considerably above printed prices. Billets are wanted much faster than they are being delivered.

Merchant Bars.—Our bar iron people are selling all they make and they are not disconcerted in the least because their customers are not all ordering iron far ahead. The anxiety of some independent concerns to keep a lot of orders ahead from car-builders has led to the taking of orders at a trifle less than it was necessary to name. Steel bars have sold at 1.40@1.50c. and in a few known instances at higher prices. Common iron in large lots for autumn delivery has sold at figures that look as if some makers were getting anxious.

Sheet Iron.—All our sheet iron makers are well sold up.

Merchant Steel.—While there have been no change in quotations the rather heavy buying of steel for implement and farm purposes has reflected strength here. No advance has been announced, although it is said the combine will revise prices before long. Agents say the consumption of merchant steel is considerably larger and the kinds mostly used in this market are fractionally higher than early in the spring.

Plates.—There is less business coming in and less to come in, but the mills are so far oversold that manufacturers would be glad to have a vacation as to new orders. The most urgent buyers this week at last are small consumers who want a few tons and for the most part want it right away.

Structural Material.—The only actual news this week was accidentally turned up. Showing that urgent buyers of shapes are obliged to advance prices on themselves in order to get accommodated. The amounts are small. There is no change in the general situation.

Steel Rails.—An advance from $26 to $28 is noted. The Pennsylvania Steel Company has booked big orders at $28. Export requirements are again demanding attention. The girder rail business is coming up nicely.

Scrap.—There is a dearth of heavy machinery, choice railroad scrap and axle stuff and it looks as if a general advance on such scrap were certain.

Pittsburg. Apr. 24.

(From Our Special Correspondent.)

The steady demand for all grades of pig iron continues and sales during the week were much

larger than the previous weeek. Prices remain firm and there are no indications of a decline. Several lots of Bessemer pig iron were sold into the third quarter at $16, Valley furnaces, while the quotations for prompt shipment range from $16.25 to $16.50 at the furnaces. Several sales of foundry and forge iron were closed this week at the ruling prices. Bessemer steel billets are scarce and a premium is offered for prompt delivery. Not more than 1,000 tons were sold. Open-hearth billets are quoted at $30, but cannot be had at that figure, as manufacturers in this district consume their entire product. There is no change in the quotations for steel bars and plates and the demand is as great as last week. Manufacturers of agricultural implements are beginning to make inquiries for steel bars to be delivered during the second half. No contracts have been placed, buyers evidently holding off for better prices. Mills continue in full operation and have all they can do until July 1st at least.

The threatened disturbance in the sheet industry has been averted, the American Sheet Steel Company conceding the demands of the Amalgamated Association of Iron, Steel and Tin-plate Workers. The Wood plant at McKeesport, where the strike occurred, is again in operation, the discharge of a number of men for organizing a lodge of the Amalgamated Association, which was the cause of the strike, having been withdrawn. The flood in the Allegheny and Monongahela rivers closed a number of mills in this district for several days and entailed serious loss, besides delaying the filling of urgent contracts.

The price of steel rails is to be advanced from $26 a ton, the pool price, to $28 on May 1st. With the exception of one or two concerns the United States Steel Corporation controls the steel rail making plants of the country. Several large orders for rails were placed during the week in anticipation of the increase in prices. The reason for the advance is given in a statement by Judge Gary, charman of the United States Steel Corporation, as follows: "The demand for rails is such that some of the rail makers are offered $28, and the result will probably be that the general selling price will soon be increased to $28, although there is opposition on the part of some of the leading manufacturers."

Jones & Laughlins, Limited, have just concluded the purchase of several thousand acres of fine ore properties in the Mesabi Range of Minnesota. The land was owned by Peter L. Kimberly, of Sharon, Pa. The price paid was not made public, but is said to exceed $2,000,000. On the tract acquired are two shafts now, the Monongahela and Lincoln, which will be developed this season into first-class mines. The possession of this additional ore property places the firm in an absolute independent position so far as the United States Steel Corporation or any other company is concerned.

Pig Iron.—Sales of Bessemer pig iron this week aggregated 12,000 tons. Some was sold at $16, Valley furnaces, for delivery during the third quarter. The price for prompt shipment is $16.25 @$16.50, Valley furnaces. About 2,500 tons of gray forge were sold at $14.50@$14.75, Pittsburg. The sales of foundry No. 2 amounted to from 3,000 to 4,000 tons at $15.25@$15.50, Pittsburg.

Steel.—There is a big demand for steel, but prices remain unchanged. About 1,000 tons of Bessemer steel billets were sold at $24 for future delivery, while billets for prompt shipment are quoted at $24.75@$25. Steel bars are quoted this week at 1.50@1.60c. and tank plates at 1.60c.

Sheets.—The market was slightly affected by the strike of one week at the Wood plant of the American Sheet Steel Company at McKeesport. Prices are unchanged, No. 28 being quoted at 3.30@3.35c. and galvanized sheeets at 70 and 5 to 70% off.

Ferro-manganese.—The demand is a trifle better this week, owing to the reduced price. Domestic 80% is still quoted at $58.50 per ton delivered.

New York. Apr. 26.

Pig Iron.—Demand has fallen off and the market is inclined to be dull. Prices are easier, though quotations are nominally unchanged at: Northern iron, tidewater delivery: No. 1 X foundry, $16.25@$16.75; No. 2 X, $15.50@$16; No. 2 plain, $14.50@$15; gray forge, $14.50@$14.75. For Southern irons on dock, New York, No. 1 foundry, $16@$16.50; No. 2, $15.50@$15.75; No. 3, $14.75 @$15.25; No. 4, $13.75@$14.25; No. 1 soft, $16.25@ $16.50; No. 2, $15.50@$15.75.

Bar Iron and Steel.—Demand is good; prices are stronger. We quote common bars at 1.40c. for large lots on dock; refined bars, 1.50c.; soft steel bars, 1.55c.

Plates.—Agents of Eastern mills report business good, with plenty of work ahead. Prices are very strong. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.78c.; flange, 1.88c.; marine, 1.98c.; universals, 1.78c.

Steel Rails and Rail Fastenings.—There has been heavy buying by the railroads recently and prices are likely to be advanced $2 per ton. Standard sections are still quoted at $26 at Eastern mills; light rails at $26@$30, according to weight. Spikes are 1.60c.; splice bars, 1.40c.; bolts, 2.10@2.25c.

Structural Material.—Buying continues very good and prices are firm. We quote for large lots at tidewater as follows: Beams, 1.75c.; channels, 1.75c.; tees, 1.80c.; angles, 1.75c.

METAL MARKET.

New York. Apr. 26.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in March and year.

Metal.	March		Year.	
	1900.	1901.	1900.	1901.
GOLD.				
Exports	$1,081,280	$490,269	$8,178,228	$9,129,040
Imports	1,921,036	2,487,019	5,824,844	8,478,305
Excess	I. $839,756	I. $1,996,750	E. $2,351,384	E. $650,735
SILVER.				
Exports	5,452,422	5,150,186	15,004,465	14,520,924
Imports	3,149,146	2,731,733	8,164,752	8,730,694
Excess	E. $2,303,276	E. $2,418,453	E. $6,839,713	E. $5,790,230

These figures include the exports and imports at all United States ports, and are furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending April 25th, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$1,561,510	$72,079	$449,600	$17,129	E. $1,921,902
1901..	12,379,779	942,133	11,689,738	1,248,347	E. 21,879,037
1900..	4,094,085	1,270,124	12,260,173	1,404,383	E. 13,679,751
1899..	1,636,863	5,320,486	9,163,516	981,694	E. 4,588,249
1898..	4,426,939	64,464,897	13,065,063	1,622,093	I. 48,594,088

Exports of gold were chiefly to Europe; imports were from the West Indies. Exports of silver went chiefly to London; imports were from Mexico and Central America.

The United States Assay Office in New York reports the total receipts of silver at 59,000 oz. for the week. This makes a total of 1,208,000 oz. from January 1st.

Average Prices of Silver per oz. Troy.

Month.	1901.		1900.		1899.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	28.97	63.12	27.30	59.30	27.42	59.36
February..	28.13	61.06	27.49	59 76	27.44	59.42
March.....	27.94	60.63	27.59	59.81	27.48	59.61
April.....	.....	.....	27.41	59.59	27.65	60.10
May.....	.....	.....	27.56	59.96	28.15	61.23
June.....	.....	.....	27.81	60.42	27.77	60.43
July.....	.....	.....	28.23	61.25	27.71	60.26
August....	.....	.....	28.13	61.14	27.62	60.00
September	.....	.....	28.85	62.63	27.15	58.89
October ..	.....	.....	29.58	63.83	26.70	57.98
November	.....	.....	29.66	64.04	27.02	58.67
December.	.....	.....	29.68	64.14	27.21	58.99
Year.....	.....	.....	28.17	61.41	27.44	59.58

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.
Jan.....	16.25	15.58	26.51	27.07	4.35	4.68	4.13	4.65
Feb.....	16.38	15.78	26.68	30.58	4.35	4.675	4.01	4.64
March...	16.42	16.29	26.03	32.90	4.35	4.675	3.92	4.60
April....	.....	16.76	.....	30.90	.....	4.675	.....	4.71
May.....	.....	16.34	.....	29.37	.....	4.181	.....	4.53
June.....	.....	15.75	.....	30.50	.....	3.901	.....	4.29
July.....	.....	15.97	.....	33.10	.....	4.030	.....	4.28
August..	.....	16.35	.....	31.28	.....	4.250	.....	4.17
Sept.....	.....	16.44	.....	29.42	.....	4.350	.....	4.11
October..	.....	16.37	.....	28.54	.....	4.350	.....	4.15
Nov.....	.....	16.40	.....	28.25	.....	4.350	.....	4.29
Dec.....	.....	16.31	.....	26.94	.....	4.350	.....	4.25
Year.....	.....	16.19	.....	29.90	.....	4.37	.....	4.39

The prices given in the table for copper are the averages for electrolytic copper. The average price for Lake copper for the year 1900 was 16.52c.; for the month of January, 1901, it was 16.77c.; for February, 16.90c; for March, 16.94c.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars	$ .48½	$ .50½
Peruvian soles and Chilean pesos	.43	.46½
Victoria sovereigns	4.85	4.88
Twenty francs	3.84	3.88
Twenty marks	4.75	4.80
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

The feature of the week has been the extraordinary speculative movement on the Stock Exchanges which has passed all previous records and has gone to a dangerous extent.

Another point is the heavy subscription reported in New York to the new British war loan. The bids put in amount to about $75,000,000. The effect on exchange and gold shipments will be felt later. One shipment of $1,000,000 gold has been made to London this week.

Silver advanced rapidly in the early part of

Imports and Exports of Metals.

Port.	Week, Apr. 24.		Year 1901.	
	Expts.	Impts.	Expts	Impts
New York.				
(N. Y. Metal Exchange.)				
Aluminum.....long tons	.....	5	41	40
Antimony ore... " "	.....	75	.....	263
" regulus.. " "	.....	.....	19	392
Copper, fine ..... " "	284	460	18,491	5,419
" matte.. " "	172	20	984	50
" ore. .... " "	.....	.....	.....	13,390
" ash..... " "	.....	.....	.....	.....
Iron ore..... " "	.....	.....	.....	75
" pig, bar, rod " "	633	40	7,916	897
" plates, sheets " "	27	.....	249	....
Lead..... " "	750	650	26,097	17,960
" ore.. ..... " "	.....	.....	.....	.....
Manganese, ore. " "	.....	538	100	4,218
Metals, old, scrap " "	29	44	1,144	764
Composition... " "	153	98	3,346	98
Nails..... " "	213	.....	3,687	....
Nickel ..... " "	27	2	698	34
" ore, matte " "	.....	.....	.....	13,295
Pipe, iron & steel " "	186	.....	6,484	.....
Railr'd material. " "	465	20	9,026	902
Rails, old..... " "	.....	.....	.....	.....
Steel bars, plates " "	77	199	22,662	4,359
" rails..... " "	4,604	.....	33 577	..
" wire..... " "	589	.....	10,480	..
Tin..... " "	.....	1,260	230	9,267
" and black plates" "	.....	568	.....	8,564
" dross..... " "	.....	.....	.....	.....
Zinc..... " "	50	.....	537	583
" dross..... " "	.....	.....	128	.....
" ashes, skim " "	.....	.....	308	.....
" ore..... " "	.....	.....	6,156	.....
Baltimore.				
(Special Correspondence).				
Antimony.....long tons	.....	.....	.....	10
Chrome Ore..... " "	.....	3 635	.....	3.936
Copper, fine..... " "	280	294	7,992	2,198
Iron pig, bar, etc. " "	.....	.....	1,218	1,962
" ore..... " "	.....	8,681	.....	94,679
Manganese ore.. " "	.....	.....	.....	15,984
Nails..... " "	.....	.....	306	.....
Pipe, iron & steel " "	.....	.....	801	.....
Spiegeleisen..... " "	.....	.....	.....	424
Steel, bars, etc.. " "	.....	.....	30,794	72
" wire ..... " "	.....	.....	618	71
" rails..... " "	2,482	.....	38,178	....
Tin..... " "	.....	.....	.....	175
" and blackplates" "	.....	.....	.....	133
Philadelphia.				
Chrome ore.....long tons	.....	.....	.....	195
Copper, fine..... " "	.....	2,800	523	.....
" ore. .... " "	.....	3,800	.....	13,185
Iron, pig, bar.... " "	18	250	230	2,370
" ore..... .. " "	.....	.....	.....	68,470
" pipe... .... " "	500	.....	1,880	.....
Lead..... " "	.....	.....	200	.....
Manganese ore.. " "	.....	.....	.....	3,275
Metals, old..... " "	.....	.....	29	701
Nails ..... " "	.....	.....	87	.....
Pipe, iron & steel " "	.....	.....	500	.....
Railroad material " "	.....	.....	175	.....
Steel, bars, etc.. " "	62	.....	4,164	.....
" rails ..... " "	.....	.....	3,776	.....
" wire ..... " "	37	.....	260	....
Tin..... " "	.....	.....	.....	190
" and black plates" "	.....	109	.....	284
Zinc ore..... " "	.....	.....	2,064	.....
" dross ..... " "	6	.....	106	.....
" ash..... " "	.....	.....	32	.....

Total United States.

Articles.	February.		Year., 1901.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....long tons	.....	159	.....	330
" ore.... " "	19	102	21	119
Copper, in all forms.... " "	6,453	4,510	16,456	12,490
Iron, pig & bar.. " "	11,310	3,092	36,032	5,368
" ore..... " "	402	39,375	842	72,728
Iron & steel plates " "	3,978	120	9,213	308
Iron & steel rails " "	23,801	1	49,397	117
" " wire " "	5,279	126	11,618	954
Lead, in all forms " "	7,825	7,909	18,206	23,421
Manganese ore and oxide..... " "	.....	472	.....	9,281
Nickel " & matte " "	134	3,588	374	3,600
Nails, cut..... " "	331	.....	3,498	.....
" wire..... " "	1,357	.....	3,050	.....
Quicksilver..... " "	41	.....	65	.....
Steel, billets, rods, etc..... " "	11,790	2,140	20,777	3,381
Tin..... " "	324	2.461	376	5,777
" & black plates " "	260	6,256	361	10,851
Zinc..... " "	641	1	691	130
" ore .... " "	4,110	.....	7,171	.....

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. on pigs and bars, 2c. on sheets, etc. Copper, tin and platinum are free of duty.

the week owing to the withholding of supplies by sellers, and the anxious desire of speculators to cover forward sales into August. At the higher price the demand was satisfied and silver fell to a figure at which it could be purchased by buyers for the Eastern trade.

The statement of the United States Treasury on Wednesday, April 24th, shows balances in excess of outstanding certificates as below, compared with the corresponding day last week:

	Apr. 17.	Apr. 24.	Changes.
Gold	$98,133,107	$94,792,090	D. $3,341,017
Silver	17,320,365	17,119,702	D. 200,663
Legal tenders	9,076,213	8,732,585	D. 343,628
Treas. notes, etc.	153,837	125,865	D. 27,972
Totals	$124,683,522	$120,770,242	D. $3,913,280

Treasury deposits with national banks amounted to $100,632,273, showing a decrease of $1,071,410 as compared with the corresponding day last week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending April 20th give the following totals, comparison being made with the corresponding week in 1900 and 1899:

	1899	1900.	1901.
Loans and discounts	$760,624,700	$767,473,300	$882,067,300
Deposits	884,399,600	842,629,400	967,201,200
Circulation	14,028,000	21,390,100	21,454,100
Reserve:			
Specie	189,716,400	161,839,600	185,684,200
Legal tenders	55,559,400	63,712,100	71,038,200
Total reserve	$245,275,800	$225,551,700	$256,722,400
Legal requirements	221,099,900	210,657,350	241,800,300
Balance, surplus	$24,175,900	$14,894,350	$14,922,100

Changes for the week, this year, were increases of $5,072,100 in specie, $1,419,800 in legal tenders and $6,983,900 in surplus reserve; decreases were $8,888,700 in loans and discounts, $2,088,000 in deposits and $24,900 in circulation.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding date last year:

	1900.		1901.	
Banks.	Gold.	Silver.	Gold.	Silver.
N. Y. Ass'd	$161,839,600	.....	$185,684,200	.....
England	159,579,670	.....	175,733,835	.....
France	388,472,430	$226,271,185	485,675,545	$219,491,340
Germany	135,610,000	69,855,000	141,335,000	72,810,000
Spain	68,445,000	78,025,000	70,010,000	82,870,000
Neth'l'ds	24,350,000	29,455,000	25,285,000	28,455,500
Belgium	14,330,000	7,165,000	14,610,000	7,305,000
Italy	77,390,000	8,060,000	76,235,000	9,654,500
Russia	418,205,000	37,575,000	364,810,000	33,970,000

The returns of the Associated Banks of New York are of date of April 20th and the others are of date of April 18th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to April 11th, 1901, are reported by Messrs. Pixley & Abell's circular as follows:

	1900.	1901.	Changes.
India	£1 5 9,062	£2,560,710	I. £1,051,648
China	265,324	246,125	D. 19,196
The Straits	82,152	48,976	D. 33,179
Totals	£1,856,538	£2,855,841	I. £999,273

Arrivals for the week, this year, were £307,000 in bar silver from New York, £26,000 from the West Indies, and £3,000 from Australia; total, £336,000. Shipments were £102,000 in bar silver to Bombay, £67,500 to Calcutta, £33,750 to China and £5,000 to Madras; total, £208,250.

Indian exchange has been quiet, and the demand for bills in London light, though the India Council has maintained the rate by refusing to sell bills below the recent price of 15.91d. per rupee. A shipment of £500,000 gold from India to London is reported.

The foreign merchandise trade of Great Britain for the three months ending March 31st is given by the Board of Trade returns as below:

	1900.	1901.
Imports	£127,198,536	£132,121,432
Exports	88,844,480	87,030,399
Excess, imports	£38,354,056	£45,091,033

The increase in imports was £4,922,896, or 3.9%, and the decrease in exports £1,814,081, or 2.1%; leaving an increase of £6,736,977, or 17.6%, in the excess of imports. The movement of gold and silver for the three months is reported as below:

Gold:	Imports.	Exports.	Excess.
1901	£5,825,851	£2,945,806	Imp. £2,880,045
1900	8,010,031	3,585,490	Imp. 4,424,541
Silver:			
1901	3,307,401	3,586,774	Exp. 279,373
1900	3,034,346	3,370,115	Exp. 335,769

Of the imports of silver this year £2,877,663, or 87% of the total, were credited to the United States.

Other Metals.

Daily Prices of Metals in New York.

April.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, Pence.	Copper. Lake, cts. ₩ lb.	Copper. Electrolytic ₩ lb.	Copper. London, £ ₩ ton.	Tin, cts. ₩ lb.	Lead, cts. ₩ lb.	Spelter. N. Y. cts. ₩ lb.	Spelter. St. L. cts. ₩ lb.
20	4.87⅞	60	27⅝	16⅞ @17	16.40 @16 50	....	26	4.32½ @4.37½	4.00	3.82½
22	4.87⅞	60⅝	27⅛	16⅞ @17	16.40 @16.50	70⅝	25¾	4.32½ @4.37½	4.0 /	3.82½
23	4.88¼	60⅝	27⅛	16⅞ @17	16.40 @16.50	70¼	25⅞	4.32½ @4.37½	4.02½	3.82½ @3.85
24	4.88	59½	27⅜	16⅞ @17	16.40 @16.50	70½	25⅞	4.32½ @4.37½	4.02½	3.82½ @3.85
25	4.88⅛	59¾	27⅛	16⅞ @17	16.40 @16 50	70¼	25⅞	4.32½ @4.37½	4.02½ @4.05	3.82½ @3.85
26	4.88	60⅛	27⅜	16⅞ @17	16.40 @16.50	69½	26	4.32½ @4.37½	4.05	3.85

London quotations are per long ton (2,240 lbs.) standard copper which is now the equivalent of the former g. m b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market has ruled rather dull throughout the week. Consumption in this country is unprecedentedly good and reports from Europe are also of a more encouraging nature. The prices are well maintained and quotations unchanged at 16⅞@17c. for Lake copper; 16.40@16.50c. for electrolytic copper in ingots, cakes or wirebars, and 16.15@16.25c. for cathodes; and 16⅜c. for casting copper.

The market for standard copper in London opened somewhat higher on Monday at £70 7s. 6d. and ranged within very narrow limits throughout the week. The closing quotations are cabled at £69 10s.@£69 12s. 6d. for spot, £70 2s. 6d.@£70 5s. for three months.

Refined and manufactured sorts we quote: English tough, £73 15s.@£74 5s.; best selected, £75 15s.@£76; strong sheets, £84; India sheets, £80; yellow metal, 7d.

Imports of copper into Great Britain for the three months ending March 31st were as follows, in long tons, the totals being reduced to terms of fine copper:

	1900.	1901.	Changes.
Copper ore	35,451	19,223	D. 16,228
Matte and precipitate	22,579	16,631	D. 5,948
Fine copper	19,437	15,649	D. 3,788
Totals, fine copper	34,272	25,887	D. 8,385

Of the total this year the United States furnished 183 tons ore, 2,751 tons matte and 5,074 tons fine copper. The decrease was 32.4% in the totals.

Tin has been rather quiet. There is nothing special to report regarding production, no material increase being expected for some time to come. The market will therefore, for the present, more or less, depend on the consumptive demand, which is quite satisfactory. At the close we quote Straits tin for prompt shipment at 26c.; futures at 25½c.

The foreign market opened on Monday at £116; advanced on Tuesday to £117, and has ruled steady ever since, the closing quotations being cabled at £117 7s. 6d.@£117 10s. for spot and £114 15s.@£114 7s. 6d. for three months.

Imports of tin into Great Britain for the three months ending March 31st were, in long tons: Straits, 6,828; Australia, 758; other countries, 1,233; total, 8,819 tons, against 7,692 tons for the corresponding period in 1900; showing an increase of 1,127 tons, or 14.6%. Re-exports of foreign tin were 5,401 tons, against 4,715 tons last year.

Lead.—There is absolutely nothing new to report. The demand continues fair. The ruling quotations are unchanged at 4.20@4.32½c. St. Louis; 4.32@4.37½c. New York.

The foreign market, which at the end of last week took a sudden upward spurt, £12 15s. being paid, has again declined, and the closing quotations are cabled as £12 3s. 9d.@£12 6s. 3d. for Spanish lead; £12 6s. 3d.@£12 8s. 9d. for English lead.

Imports of lead into Great Britain for the three months ending March 31st were as follows, in long tons:

From:	1900.	1901.	Changes.
United States	9,066	14,157	I. 5,091
Spain	21,592	19,115	D. 2,477
Australia	12,900	17,301	I. 4,401
Other countries	4,386	3,022	D. 1,364
Totals	47,944	53,595	I. 5,651

Exports of lead for the three months were 7,838 tons, against 7,916 tons last year. The lead credited to the United States is chiefly Mexican lead, refined here in bond.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Nothing of interest is transpiring in pig lead. Missouri brands are selling in a rather liberal way at 4.22½c. and argentiferous lead at 4.32½c.

Spelter.—The firmer tendency reported last week has made further progress. Prices for ore have advanced sharply, and producers have practically withdrawn from the market, preferring to await further developments. The ruling quotations are 3.82½@3.85c. St. Louis; 4@4.05c. New York.

The foreign market remains firm, good ordinaries being quoted at £17 7s. 6d., specials at £17 12s. 6d.

Imports of spelter or metallic zinc into Great Britain for the three months ending March 31st were 14,933 long tons, against 17,584 tons for the corresponding period in 1900; a decrease of 2,651 tons, or 15.1%, this year.

Antimony is quiet but steady. The ruling quotations are 10@10¼c. for Cookson's; 8¾c. for Hallett's; 8⅝c. for Italian, Hungarian, Japanese and U. S. Star.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of orders.

Platinum.—Consumption continues good and prices are strong. For ingot platinum in large quantities, $18.20 per Troy oz. is quoted in New York. In London a recent quotations gives 75s. per ounce, unmanufactured, and 77s. 6d.@80s. for crucibles, etc. This is very nearly on a parity with New York prices.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram.

Quicksilver.—While the nominal quotation is still $51 in New York, the metal can be had for $48.75@$50 per flask in large quantities, with a slightly higher rate named for small orders. San Francisco prices are the same as last week, $46.50@$47 per flask being named for domestic orders and $42@$42.50 for export. The London price continues nominally £9 2s. 6d. per flask.

Quicksilver receipts at San Francisco in March were 2,040 flasks. For the three months ending March 31st they were 6,144 flasks, against 6,011 flasks in the corresponding period in 1900. These receipts do not include shipments from the mines to consumers. For the three months this year the shipments by water from San Francisco were: Korea, 12 flasks; Mexico, 928; Central America, 302; British Columbia, 4; New York, 35; total, 1,281 flasks, against 2,919 in the first quarter of 1900.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

Aluminum.	Per lb.		Per lb.
No. 1, 99% ingots	33@37c.	Ferro Titanium (20%)	$1.00
No. 2, 90% ingots	31@34c.	Ferro-Tungsten (37%)	52c.
Rolled sheets	42c. up	Magnesium	$2.75@3
Alum.-bronze	20@23c.	Manganese (over 99%)	$1.00
Nickel-alum	33@39c.	Mangan'e Cop. (20% Mn)	32c.
Bismuth	$2.05	Mangan'e Cop. (30% Mn)	38c.
Chromium (over 99%)	1.00	Molybdenum (Best)	$1.45
Copper, red oxide	50c.	Phosphorus	50c.
Ferro-Molyb'um (50%)	$1.00	American	70c.
Ferro-Titanium (10%)	90c.	Tungsten (Best)	78c.

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

Mr. John Roger, president of the Stearns-Roger Manufacturing Company, Denver, Colo., has been in New York on business of the company since April 22d and will return West on the 28th.

In Boston, April 25th, Kidder, Peabody & Company sent the following letter to the secretary of the Boston Stock Exchange: "At 2 o'clock to-day more than two-thirds of the shares of the Boston & Montana and Butte & Boston Mining companies had been deposited with us, under the terms of the recent circular of the directors of those companies."

Litigation has been begun, however, to prevent the proposed consolidation. In Jersey City, April 25th, a temporary injunction was granted by Vice Chancellor Pitney, restraining the Amalgamated Copper Company from purchasing control of the stocks of the two companies until the full terms upon which the deal will be made are fully disclosed to the stockholders. The order is returnable on May 6th. The application for the injunction is signed by Calvin O. Geer, who states that he is the owner and holder of 104 shares of Amalgamated stock.

A dispatch from Wilmington, Del., April 25th, says: "Judge Gray, of the United States Court in this city, filed an order in Trenton to-day for the American Smelting and Refining Company and M. Guggenheim's Sons to show cause on May 13th, at Trenton, why they should not be permanently enjoined from making use of the recently issued $45,200,000 increase in the capital stock of the smelting and refining company. A temporary order has been granted restraining the sale or use of this stock pending a final hearing. The suit was instituted by Irving E. Lengle, of Reading, Pa., an owner of $50,000 worth of the stock of the Smelting Company. The suit is a repetition of the one instituted in the New Jersey State courts. Lengle in his bill of complaint goes over the same ground covered by the bill filed by Donald in the New Jersey courts, and charges that the deal involved the issuing of $45,200,000 worth of stock of the American Smelting Company to the Guggenheims, and this was $23,000,000 in excess of the value of their plant and the money they were to receive in payment."

SLATE TRADE REVIEW.

New York. Apr. 26.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, Inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Chap'n Key's ne	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red
	$	$	$	$	$	$	$	$	$
24 x 14	6.50	3.50	3.00	3.00	.	5.10	3.00	..	.....
24 x 12	6.60	3.50	3.00	3.00	3.80	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.00	... .	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.00	4.00	5.25	3.00	4.00	.....
20 x 12	6 90	3.75	.....	3 00	....	5.25	3.00	3.75	.....
20 x 11	6.80	.....	.....	3.25	....	5.25	3.00	.....	.....
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	3.00	4.25	10.50
18 x 12	6.80	3.75	....	3.00	.....	5.25	3.00	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	.....	3.00	3.75	.....
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	3.00	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	3.00	4.25	10.50
16 x 12	6.80	3.75	.....	3.00	.....	.....	2.90	3.50	.....
16 x 10	7.00	4.00	3.50	3.25	4.00	5 25	2.90	4.00	10.50
16 x 9	7.00	4.25	.....	3 25	4 00	5.35	2.90	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	2.90	4 25	10.50
14 x 10	6 60	3.75	3.25	3.00	.....	5 25	2.70	3.75	10.50
14 x 9	6.50	.....	.....	.....	.....	.....	2.70	3 75	10.50
14 x 8	6 60	3.75	3.25	3.00	4.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3.00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75	....	.. .	....	.. .	...	2.50	3.25	....
12 x 9	5.60	.....	.....	.....	... .	.....	2.50	3.25	.....
12 x 8	5.50	3.50	.....	2.85	.....	4 85	2.50	3.50	9.00
12 x 7	5.00	3.25	.....	2.85	3 25	4.85	2.00	3.50	9 00
12 x 6	4.80	3 25	.	2.85	3.25	4.75	2.00	3 50	8.50

A square of slate is 100 sq. ft. as laid on the roof.

The spring trade in roofing slate has been better than last year, but mill stock shows a falling off. Prices are more generally maintained on account of the understanding between producers in the leading districts. On the other hand, export trade is less than last year, owing to the decreased British demand. In the three months ending March 31st, the exports from New York were valued at $79,607, against $102,683 in the corresponding period in 1900; showing a decrease of $23,076, or 22.4%. Roofing slate exports were 18,800 squares, against 18,200 squares last year. Of this year's movement the United Kingdom received about 15,000 squares, the balance going to Australasia, Denmark and Germany. Mill stock exports are much less than last year, owing to the restricted movement to the far East, only small quantities having been sent to Africa and India.

MINING STOCKS.

Complete quotations will be found on page 548 549 and 550 of mining stocks listed and dealt in at:

Boston.	Salt Lake.	Montreal.
Colo. Springs.	San Francisco.	London.
Denver.	Spokane.	Mexico.
New York.	St. Louis.	Mexico.
Philadelphia.	Toronto.	Paris.

New York. Apr. 26.

There has been heavy trading in copper and industrial securities. The quotations of Amalgamated Copper have varied between $125⅛ and $119, recovering on Wednesday to $123½. Anaconda fluctuated sympathetically, selling at $51 @$48½. British Columbia on curb softened from $18¼ to $16, and Union, of North Carolina, from $8 to $6¾, owing to freer offerings of stock.

There have been dealings on curb in Empire State-Idaho stock, and sales are reported at $15 @$12⅜. This company has lead-silver mines in Idaho, and has paid to date $853,905 in dividends, and is distributing 12% annually on its outstanding capital stock of $5,055,420.

Ontario, of Utah, is lower at $9@$9.50, while Horn Silver holds at $1.20.

More has been done in Quicksilver common, of California, which sold at $1.25@$2, while the preferred stock brought $9.50@$9.75. Brunswick is uninteresting at 22@23c.

Of the Colorado sellers, Elkton, of Cripple Creek, held at $1.60 and Jack Pot at 75c., while Isabella was weak at 75@72c. Small Hopes, of Leadville, brought 65c.

Alice, of Montana, shows some sales at 38@40c.

Comstocks are quiet, only occasional sales being made of the better-priced stocks. Consolidated California & Virginia changed hands at $2.15.

Auction sales were $5,000 Iowa & Illinois Coal Company first mortgage bonds at 20; 221—30 400ths New Jersey Zinc Company beneficial trust certificates at $226 for the lot; 54 shares Lackawanna Iron and Steel Company, Pa., at $100, and 4 1/3 shares same at $101; 500 shares Nipper Consolidated Copper Company (par $25) at $65 per share, and 250 shares British Columbia Smelting Company (par $25) at $50 per share.

The final steps in the consolidation of M. Guggenheim's Sons with the American Smelting and Refining Company took place April 22d, in New York, when at an adjourned meeting of the company the by-laws were amended increasing the number of directors from 16 to 21, and the following new directors were elected: Isaac Guggenheim, Daniel Guggenheim, Murray Guggenheim, Solomon Guggenheim, Simon Guggenheim.

Daniel Guggenheim was elected chairman of the board, and Simon Guggenheim treasurer.

The list of officers of the company is, therefore, as follows: President, E. W. Nash; vice-president, Barton Sewell; treasurer, Simon Guggenheim; secretary, Edward Brush; assistant treasurer, Thomas B. Adams. There still remain two vacancies on the board, caused by the resignations of H. H. Rogers and Leonard Lewisohn.

The capital of the company has already been increased to $100,000,000 and the new stock issued. The United Metals Selling Company, in which Messrs. Rogers and Lewisohn are largely interested, will have charge of the selling of the Smelting and Refining Company's output abroad.

The new board of directors met April 23d and organized an executive board, consisting of 11 members. The members are Daniel Guggenheim, chairman; C. W. Nash, Barton Sewell, A. R. Meyer, D. Sheedy, A. Eilers, J. B. Grant, Isaac Murray, Simon and Solomon Guggenheim. It is announced that each member of the new committee will take charge of a separate department and will have supervision over different plants.

Boston. Apr. 25.

(From Our Special Correspondent.)

The market has sobered down since last week. Perhaps Friday's holiday had a quieting effect, perhaps the talk of dearer money, perhaps—but it is no use going on, since the result is that we no longer have so wild a market as I noted a week ago. Business has been active enough, but in a more reasonable way. Prices have been generally good, but closed to-day with some reaction.

Amalgamated Copper continued higher than the New York. It sold up to $123, but at the close was down to $120½. Butte & Boston was up to $115, but went off to $112½ at the close, while Boston & Montana stayed around $435.

The Lake stocks were less active, with little change in the leaders, but generally a lower range of prices for the newer companies.

Better business has been done in the gold stocks. American Zinc, which has been neglected for some time, had a good deal of attention and was quite a feature in the market.

We seem to be in for good business for a time, and it is just as well that the tendency of the market to run away has been checked.

Reports, of course, are plenty, the latest being that the Amalgamated Copper Company would absorb the American Smelting and Refining Company. This has been denied, and indeed does not seem at all probable.

Reports from Butte continue interesting, though not edifying. The burning of the Heinze smelter provoked some comments here which, perhaps, had better not be repeated.

It is understood that the plans of the Bingham Company provide for the organization of a new company to be organized under Maine laws which will take over the present company. The new company will have, it is stated, a large cash surplus and will increase the size of the Bingham smelter to four stacks. A new converting plant will also be added. To provide for the acquisition of the new properties and the placing of a large working capital in the treasury, new stock will be issued, and this has been underwritten.

The United States Mining Company's promised circular has not yet been issued, but is promised in a few days.

Salt Lake City. Apr. 21.

(From Our Special Correspondent.)

The local Stock Exchange has instituted a regular call each afternoon, commencing at 2.30, in addition to the morning call. Directly following the regular afternoon call an open call is made, this with a view of eliminating the curb propositions, which has assumed such proportions as to practically block traffic on the street facing the exchange.

Yankee Consolidated has made a stride forward, jumping up in the last few days from 10c. to a high point of $1.32 on Friday of this week. This has been caused by the opening of a fine body of ore and indications of uncovering still more in the near future.

For the first half of April—up to the 15th—the dividends of Utah mines represents a total of $220,000. The contributors are as follows: Centennial-Eureka, with its quarterly of $50,000; Daly-West, with its regular monthly of $45,000; Mammoth, $20,000; Silver King, with its regular $100,000; Swansea, with $5,000.

On Monday of this week the directors of Consolidated Mercur met and declared a dividend of 12½c. a share, aggregating $125,000, payable May 1st. In addition to this they have reserved a surplus of $209,000 in the treasury. It is claimed that since the consolidation last August the average net monthly earnings have been $56,000, or about $675,000 per year, representing a 10% earning on the capitalization. This is grateful news to the public, who, I am sure, have awaited it with much interest.

San Francisco. April 20.

(From Our Special Correspondent.)

The market for Comstock shares was somewhat more active and prices a little better. Toward the close of the week there was a slight reaction.

Some of the oldest supporters of the Exchange are beginning to go over to the Oil Exchange, and more will follow them.

Some quotations noted are: Consolidated California & Virginia, $2.30@$2.35; Ophir, 98c.; Caledonia, 67c.; Mexican, 38c.; Sierra Nevada, 29c.; Best & Belcher, 23c.; Crown Point, 20c.; Yellow Jacket, 16c.

On the Producers' Oil Exchange the market was rather dull, though dealings were still fairly large. The range of prices on most stocks was a little lower. Some quotations noted are: Hanford, $94; Kern River, $13; Peerless, $8; Home, $3.85; Four Oil, 49c.; California Standard, 39c.; Lion, 18c.; Petroleum Center, 14c.

On the San Francisco Oil Exchange business was also rather quiet. The dealings were largely in the lower-priced shares, Petroleum Center, Monarch, Lion and Independence being apparently the favorites.

London. Apr. 16.

(From Our Special Correspondent.)

A flotation of considerable interest to American oil people has been effected in London this week by the introduction of the California Oilfields, Limited, to the notice of investors. This company has been formed by the firm of Balfour, Williamson & Company, merchants, of London and Liverpool, in connection with the firm of Balfour, Guthrie & Company, of San Francisco, and its object is to purchase the properties belonging to the California Oil and Gas Company, a corporation registered under the laws of Arizona. The properties are situated in the Coalinga Oil-fields, Fresno County, Cal., and their value is so far entirely prospective, though the success of the adjoining Coalinga Company's operations appears to warrant the optimism of the promoters. The purchase price is £120,000 in cash and £65,000 in shares. The capital of the company is £300,000, of which £185,000 is being offered for subscription, £65,000 is to go as share purchase price and £50,000 is to be held in reserve. After paying underwriting commissions, etc., there will be £40,000 available as working capital. The whole issue is guaranteed, so the company will proceed with its operations without delay. The properties have been investigated by Dr. Boverton Redwood, of London, and Wm. W. Hague, of Pennsylvania.

The only business done in the mining section of the Stock Exchange is in the West African department, where things are kept going busily by the professional element. Reports are now coming to hand from the mining engineers who have been sent out in considerable numbers during the past six months, but so far these reports tell us little or nothing as to the possibilities of the district. Another company has been introduced to the public this week. This is the Tarkwa Consols, Limited, which has been formed with a capital of £200,000 to acquire some property near the Tarkwa mines and to prospect on it. The prospectus gives no information at all as to the value of the properties. Bewick, Moreing & Company are the consulting engineers and presumably it is through their instrumentality that the property has been acquired. The only object of forming the company seems to be to give three or four promoting syndicates an underwriting profit.

The Whitaker Wright collapse continues to exercise a very depressing effect on the mining market generally. Last week I mentioned that the Caledonia Copper Corporation had grievously disappointed its shareholders, owing to the statements in the prospectus proving to be fabrications. It now appears that the directors wish to raise a further sum of £75,000 in order to erect dressing and smelting plants on the spot. It has been considered best to take shareholders into council with a view of discussing the possibilities of the future. Apparently the Whitaker Wright element has retired from the control of the company, for one of his directors has resigned. There is now no doubt that the ore is of low grade and of rather a troublesome character, so that the metallurgical difficulties are considerable.

Another Whitaker Wright company has come prominently before the public in a very objectionable manner this week. This is the Standard Exploration Company, which was formed two years ago to take over a miscellaneous lot of unsuccessful West Australian ventures with a fabulously rich placer property on Baranoff Island, Alaska, thrown in as a make-weight. Of course, nothing good ever came of the flotation, and the capital was gradually wasted. The company is now in debt and a creditor has petitioned for a winding-up. The company, however, got a nominee to oppose the winding up, or at least to ask for the postponement of such action at present so that the affairs of the company will not be made public at present.

Last week I mentioned that the report of the Mountain Copper Company (Shasta County, Cal.) for 1900 showed that no new discoveries had been made and that the life of the mine would not be much more than three years, on the directors' estimates. The shareholders have since been informed by the chairman that the ore reserves have been remeasured and found to be greater than was mentioned in the report, but no doubt this statement was intended

to be merely perfunctory. The chairman also announces that one of the blast furnaces is being run on the pyritic process and he hopes to economize fuel considerably, though the rate of output of this furnace is less than the ordinary ones. I believe it is also the intention of the directors to erect a bessemerizing plant on the spot instead of shipping the matte to New Jersey, as hitherto.

Paris. Apr. 14.

(From Our Special Correspondent.)

The mining stock market was almost destitute of events during the past week. The chief topic of discussion has been Malfidano, which has shown a further fall in the quotations. It is difficult under the circumstances to form any fair judgment of the company's future, but it looks as if the stock would be a purely speculative value for some time to come.

The metallurgical stocks remain very quiet, and their fluctuations have been slight. There is nothing new in the situation, though there has been reported some improvement in the number of orders received.

The South African market is also very dull, and speculators seem wearied by the interminable war which shows no more signs of ending than it did three months ago.

The zinc and lead shares—outside of Malfidano—show but little movement. The demand for the metals does not improve, and prices remain low.

Copper is again higher, and the shares of the copper companies are well supported. The attempt of consumers here to force down prices shows definite signs of failure. We are being gradually forced to recognize the fact that America now controls the copper market and that prices are dictated from New York, not from London nor Paris. It is not pleasant to many of our people, but they are forced to admit it.

We read with some envy of your booming markets in New York, which contrast very strongly with the state of affairs here. Of course, you are going to have a reaction after a while. Everyone here says it will be soon and great, but probably the wish leads to the prediction. For myself, I both hope and believe that your prosperity will have a long term yet. Azote.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Anchoria-Le'a'd	Colo.	May 15	Colo Springs, Colo.
Boston-Tintic	Utah	May 6	Salt Lake City, Utah.
Constellation	Utah	May 6	Park City Utah.
Dahlonega Con.	Ga.	May 1	Toledo, O.
Goleta	Cal	May 18	San Francisco, Cal.
Iron Silver	Colo.	May 1	30 Broad St., N. Y.
Jefferson	Utah	May 1	Salt Lake City, Utah.
Justice	Nev.	May 7	San Francisco, Cal.
*Oxford Beta	Cal.	June 4	San Francisco, Cal.
Tamarack	Mich.	May 3	Boston, Mass.

* Special meeting.

ASSESSMENTS.

Name of Company.	Location.	No	Delinq	Sale.	Amt.
Am. Oil & Ref	Cal.	3	Apr. 29	May 27	.05
Andes	Nev.	53	May 10	May 28	.05
Belcher	Nev.	68	Apr. 9	Apr. 30	.10
Best & Belcher	Nev.	73	May 3	May 24	.15
Bogan	Utah	6	Apr. 26	May 21	.10
Bullion	Nev.	58	Apr. 22	May 13	.03
Crown Point	Nev.	82	Apr. 23	May 14	.10
Daylight	Utah	1	Apr. 22	May 14	.00½
Gould & Curry	Nev.	94	Apr. 8	Apr. 29	.10
Grape Vine Canyon	Cal.	4	May 8	June 3	.05
Joe Bowers	Utah		Apr. 29		.02
Justice	Nev.	71	Apr. 23	May 13	.05
Kern River Oil	Cal.	2	May 3		1.00
Lucky Bill	Utah	32	Apr. 27	May 21	.10
Ophir	Nev.	80	Apr. 22	May 13	.15
Overman	Nev.	7	Apr. 10	Apr. 30	.05
Queen Esther Oil	Cal.		May 16	June 6	.10
Reward	Cal.	9	May 13	June 5	.02
Sailor Con	Cal.	9	Apr. 15	May 9	.01
Savage	Nev.	103	May 6	May 24	.10
Sea Swan	Utah	1	May 8	May 28	.00½
Shoebridge Bonanza	Utah	8	Apr. 9	Apr. 30	.01
Shower Con	Utah	3	Apr. 30	May 31	.02
Snow Flake	Utah	19	Apr. 15	May 1	.01
Snowstorm	Utah	1	Apr. 15	May 15	.00½
South Sliger	Cal.	1	May 6	May 27	.02
Tetro	Utah	18	Apr. 12	May 4	.01½
Union Con	Nev.	61	May 8	May 27	.15
Utah Con	Nev.	36	May 15	June 5	.05
Yellow Jacket	Nev.	7	May 7	June 12	.10

DIVIDENDS.

Name of Company	Latest Dividend. Date.	Per share.	Total.	Total to date.
†Alaska Treadwell	Apr 29	.37½	$75,000	$4 670,000
†Amalgam. Copper	Apr. 29	1.50	1,125,000	10,500,000
Amal Copper, extra	Apr. 29	.50	375,000	
†Am. Steel Hoop, pf	Apr. 30	1.75	245,000	1,715,000
†Am. Tin Plate, com.	May 15	2.00		
†Boston & Mont	May 20	5.00	750,000	23,975,000
Boston & Mont, extra	May 20	5.00	750,000	
Butterfly-Table, Colo.	Apr. 27	.00¾	9,375	15 625
†Cambria Steel, Pa.	May 15	.50	160,000	1,920,000
†Central Oil, W. Va.	May 1	.37½	22,500	67,500
Central Point Con. Oil	May 1	.02	3,800	19,000
Con. Mercur, Utah	May 1	.12½	125,000	1,716,000
Creede & C. C., Colo.	May 1	.02	16,000	16,000
*Croesus, Cal.	May 1	.05	10,000	197,300
†Flat T. C. L. Assn., pf	May 1	1.00	37,141	2,024,168
†Flat T. C. L. A'n, com.	May 1	1.00	37,141	352,840
†Gold King, Colo.	Apr. 20	.03	28,106	206,107
*Gwin, Cal.	Apr. 16	.15	15,000	206,500
Home, Leadville	May 1	.25	12,500	137,500
Home Oil, Cal.	Apr. 20	.10	10,000	240,000
*Ingham Con	Apr. 28	.00¼	3,399	15 995
†Mont. Ore Purch.	Apr. 27	1.00	80,000	2,080,000
Mont. Ore Purch., ex	Apr. 27	2.00	160,000	
†National Salt, pf.	May 1	1.75	87,500	700,000
†National Salt, com.	May 1	1.50	105,000	455, 00
†National Tube, com.	May 15	1 50	597,906	2,391,624
†Parrot, Mont.	Apr. 29	1.50	344,775	5,063,375
Phoenix Iron, Pa.	Apr. 30	1.75	14,000	
Quicksilver, pf.	May 10	.50	21,500	1,888 411
Shawmut Oil, W. Va.	May 1	.50	25,000	50,000
†Tenn. C., I. & R.R. pf.	May 1	2.00	4,960	252,960
Town Topics, Colo.	Apr. 2	.00½	5,000	5,000

* Monthly. † Quarterly.

STOCK QUOTATIONS.

NEW YORK.

Name of Company.	Location.	Par val.	Apr. 19. H.	Apr. 19. L.	Apr. 20. H.	Apr. 20. L.	Apr. 22. H.	Apr. 22. L.	Apr. 23. H.	Apr. 23. L.	Apr. 24. H.	Apr. 24. L.	Apr. 25. H.	Apr. 25. L.	Sales
Alamo	Colo.	1					.14				.14				1,900
Alice	Mont.	25	.38		.38	.37			.38		.40				1,300
Amalgamated c.	Mont.	100	123¼	122¾	123¾	126	125½	119	124¾	120	123½	120	121½		
Anaconda, c.	Mont.	25	52.00	50.63	52.00	50.63	51.00	49.50	50.50	49.50	50.50	48.50	49.13		
Anaconda Gold.	Colo.	5	.43		.43		.43								1,500
Argentum-Jun.	Colo.	2					.24				.25				500
Best & Belcher	Nev.	3							.20						200
British Col. Cop.	B. C.	5	19.50	18.50	19.25	18.75	18.50	18.35	17.75	17.00	19.50	16.25	16.75	16.25	800
Brunswick Cons.	Cal.	1	.23		.24	.23	.23		.23	.22	.23	.22			5,800
Comstock T.	Nev.	100													
Con. Cal. & Va.	Nev.	2½							2.15						100
Cripple Cr. Con.	Colo.	3			.08										1,000
Elkton Con.	Colo.	1									1.60				100
Golden Fleece	Colo.	1													
Hale & Norcross.	Nev.	3					.25								200
Homestake	S. Dak	100							10?						20
Horn Silver	Utah.	20			1.10						1.20				650
Iron Silver	Colo.	20													
Isabella	Colo.	1	.73		.72				.75		.72				900
Jack Pot	Colo.	1							.55						100
Leadville	Colo.	10	.07												500
Little Chief	Colo.	1	.15												100
Mexican	Nev.	3					.40								800
Mollie Gibson	Colo.	5													
Mt. Rosa	Colo.	1							.35						400
Ontario	Utah.	100							9.50	9.00					210
Ophir	Nev.	3					.82								.00
Pharmacist	Colo.	1	.10		.10				.10		.11				2,000
Phoenix	Ariz.	1					.10								800
Portland	Colo.	1	2.90												100
Potosi	Nev.	3													
Quicksilver	Cal.	100					1.25		2.00	1.75	2.00		2.13		2,650
Quicksilver, pf.	Cal.	100					9.75	9.25							400
Savage	Nev.	2½					.12								100
Sierra Nevada	Nev.	3													
Small Hopes	Colo.	20									.65				200
Standard Con	Cal.	10													
Tenn. Copper	Tenn.	25	28.50	26.00	26.50	25.75	26.50	25.75	24.50	24.00	24.00	23.00	23.00	22.00	
Union Copper	N. C.	10	8.25	8.00	8.00	7.88	7.75	7.63	7.50	7.38	7.00	6.75	6.88	6.50	6,500

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	$100	67½	64⅜	69	66¾	67½	63	65	63½	64¼	60½	60⅞		225450
" " pf	100	98¾	97½	99	97¾	98⅝	97⅝	98⅛	97¾	98¼	97¼	97½		16,500
Am.S. & W. Con	100	4¾	48											600
" " pf'r n	100													
Col. Fuel & I.	Colo.	100	95	91½	97	94⅛	99	96	98⅛	93½	96	93	98		87,500
Col. & H. C.& I.	"	100	20¼	20	20¼	20	20	19¾	19¼	18¾	18¾		19		7,700
Federal Steel		100													
" " pf		100							108¾						200
Fleming'n C.&C W.Va		100	8	5	8	5	8	2	8	2	8	2			
*Mong. R. Coal. Pa.		100	15⅛	15½	15⅜	15	15¼	15	14⅞	14⅝					10,480
" " " pf	"	100	49	48½	49	48¾	48½		48½	48⅜					1,680
National Lead		100	19	18¾			18		17⅛	17			17		800
" " pf		100	84⅜		85		84½		85				85½		800
National Salt		109	47	46¾	46¾	45¾	46⅜	45	46¼	45½	†44	43¼	44		3,150
" " pf		100	80¼	80	80½		80¾	80	80	79½	†76¾		77½		2,389
*Pittsburg Coal. Pa.		100	34⅝	34½	35	34⅜	35		34½	34					9,555
" " pf	"	100	99	98½	98¼	98	98¼	98⅛	98	97¾					2,282
Republic I. & S.		100	21¾	20¾	21¾	20⅜	20⅞	20½	21¾	20¾	20⅝	20¼	20½		20,220
" " pf		100	77⅛	76⅝	77¾		77⅛	77	77½	76⅝	76½	75⅜	77		8,410
Sloss-Shef		100	38	37			38	36½	37	36½	38		36½		1,700
" " pf		100			84¾	83¾			84						400
Stan. Oil		100	821	813	826	824	821	817	816	810	815	810	816	814	100
Tenn. C. I.& R.R		100	69	68	68⅞	67½	69¼	66¾	68¼	66	67¼	64⅜	67⅜		38,810
Va. Coal & C.	Va.	100	10	7	10	7½	8¼	8	8¼	8	8½	8			

* On Pittsburg, Pa., Exchange. Total sales. 879.956 †Ex-Dividend.

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par value.	Apr. 18.	Apr. 19.	Apr. 20.	Apr. 22.	Apr. 23.	Apr. 24.
Belcher	Nev.	$3.00	.19	.17	.17	.17	.16	.18
Best & Belcher	"	3.00	.21	.22	.22	.20	.18	.15
Caledonia	"	3.00	.69	.69	.71	.69	.68	.65
Challenge Con	"	3.00	.15	.14	.14	.13	.12	.10
Chollar	"	3.00	.12	.08	.09	.09	.07	.07
Confidence	"	3.00	.70	.68	.68	.65	.65	.60
Con. California & Virginia	"	2.50	2.30	2.40	2.30	2.30	2.30	2.30
Crown Point	"	3.00	.09	.17	.18	.17	.16	.16
Gould & Curry	"	3.00	.19	.20	.19	.18	.18	.16
Hale & Norcross	"	3.00	.24	.22	.25	.25	.25	.24
Justice	"	2.00	.07	.07	.07	.06	.07	.05
Mexican	"	3.00	.36	.36	.37	.36	.34	.32
Occidental Con	"	3.00	.08	.03	.03	.03	.03	.03
Ophir	"	3.00	.80	.97	1.00	1.00	1 00	1.00
Potosi	"	3.00	.09	.05	.09	.08	.08	.10
Savage	"	2.50	.08	.09	.10	.09	.09	.07
Sierra Nevada	"	3.00	.29	.29	.29	.26	.26	.24
Standard Con	Cal.	10.00	4.00	4.00	4.00	3.90	4.00	3.95
Union Con	Nev.	2.50	.15	.13	.15	.14	.13	.12
Utah Con	"	1.00	.04	.04	.04	.04	.03	.02
Yellow Jacket	"	3.00	.15	.14	.14	.14	.14	.13

CALIFORNIA OIL STOCKS *

Name of Company.	No. of shares.	Par Val.	Apr. 6. H.	Apr. 6. L.	Apr. 8. H.	Apr. 8. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. 11. H.	Apr. 11. L.	Apr. 12. H.	Apr. 12. L.	Sales
Blue Goose	5,000	$100			4.00		3.00	2.00	3.50	2.00	2.75	2.00			
Buckhorn	20,000	10.00	2.75		3.50		2.75		3.75	2.75	2.75				
Cal. Standard	500,000	1.00	.43	.42	.43	.40	.44	.40			.42	.41			600
Caribou	100,000	1.00	.69	.68	.72	.65	.75	.70	.75	.68	.70				3,675
El Dorado	100,000	1.00	1.75	1.75	1.75		1.50		1.70	1.50					
Four	300,000	1.00	.51		.51	.50	.51	.50	.50		.50				1,900
Hanford	2,000	10.00	91.00	88.00	90.00	86.00	90.00	85.00	90.00	89.00	90.00	88.00			17
Hanf'd F. & K.	150,000	1.00	.20		.20		.20		.18	.15	.15				400
Home	100,000	1.00	3.80	3.75	3.80	3.75	3.80	3.75	3.85	3.75	3.80	3.75			2,400
Homestake	10,000	10.00	8.00		8.00		8.00	7.50	8.00		8.50	7.00			
Independence	600,000	1.00	.18	.17	.20	.18	.20	.18	.20	.19	.20	.18			21,600
Kern	100,000	1.00	7.63	7.25	8.00	7.00	7.50	7.25	7.50	7.00	7.50	7.00			225
Kern River	20,000	5.00	15.00	11.25	12.00	11.50	12.00	11.25	11.50	11.25	11.63	11.25			160
McKittrick	60,000	1.00			.40		.40	.25	.40	.25	.25				800
Mo'arch of Ari	500,000	1.00	.55	.53	.55		.55	.53	.54	.49	.53	.52			3,600
Monte Cristo	500,000	1.00	2.50	2.40	2.50	2.40	2.50	2.45	2.50	2.45	2.50	2.35			300
Oil City Petrol	5,000	100.	.26	.25	.28	.24	.28	.26	.28	.26	.27	.25			2,800
Petrol. Center.	500,000	1.00	.16	.15	.18	.16	.17	.15	.16	.13	.15	.14			6,650
Queen Esther.	100,000	1.00													
San Joaquin	100,000	1.00	10.00	9.75	10.00	9.50	10.00	9.25	10.00	9.25	10.00	9.50			250
Sterling	250,000	1.00	2.10	2.00	2.15	2.05	2.15	2.00	2.05	2.00	2.10	2.00			250
Sunset (Orig.)	100,000	5.00	.26		.28	.25	.26	.25	.27		.28	.27			
Twenty-eight	60,000	10.00	1.40	1.23	1.35	1.25	1.50	1.35	1.28	1.23	1.35	1.25			840
Yukon	100,000	2.50	.25		.30	.25	.30	.25	.31	.30	.32	.30			175

* Producers' Oil Exchange. San Francisco. Total sales. 47,482 shares.

ST. LOUIS, MO.*

Name.	Location.	Share capital.	Par val.	Apr. 23. Bid.	Apr. 23. Ask.	Name.	Location	Share capital.	Par val.	Apr. 23. Bid.	Apr. 23. Ask.
Am.-Nettle	Colo.	800,000	$10	$0.90	$1.00	Granite Bimetallic	Mt.	1000,000	$10	$2.25	$2.35
Catherine Lead.	Mo	50,000	10	5.00	6.00	Kan. & Tex. Coal.	Mo	25,000	100	50.00	54.50
Central Lead	Mo	10,000	100	130.00	135.00	Renault Lead.	Mo	80,000	10	11.00	12.00
Columbia Lead.	Mo	50,000	10	13.00	14.00	St. Joe Lead.	Mo	300,000	10	14.00	14.50
Con. Coal.	Ill.	500 0	100	15.00	14.00						
Doe Run Lead.	Mo	10,000	100	128.00	132.50						

* From our special correspondent.

STOCK QUOTATIONS.

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	Shares issued.	Apr. 18. H.	Apr. 18. L.	Apr. 19. H.	Apr. 19. L.	Apr. 20. H.	Apr. 20. L.	Apr. 22. H.	Apr. 22. L.	Apr. 23. H.	Apr. 23. L.	Apr. 24. H.	Apr. 24. L.	Sales
Adventure Con..	$25	100,000	17.00	16.00	.....	.....	17.75	17.25	18.50	17.50	18.50	17.00	17.00	16.50	5,006
Aetna.....	5	1000,000	.....	.....	.....	.....	.....	.....	.....	.....	.75	.....	.....	.....	800
Allouez.....	25	80,000	.....	.....	.....	.....	.....	.....	.....	.....	8.00	.....	8.00	.....	470
Amal. Copper...	100	750,000	124⅜	121	.....	.....	128⅜	124⅜	125⅛	122⅝	124¼	121⅜	123⅛	120¼	35,360
Am. Z. L. & Sm..	25	60,000	14.00	13.25	.....	.....	16.00	15.00	18.00	15.25	17.88	16.13	17.00	15.50	18 008
Anaconda.....	25	1200,000	51.50	.....	.....	.....	51.75	.....	50.13	49.50	.....	.....	50.25	.....	245
Arcadian, c.....	25	150,000	23.50	22.00	.....	.....	21.75	21.00	21.50	21.00	.....	.....	21.00	20.50	615
Arnold.....	25	60,000	.....	.....	.....	.....	3.63	.....	4.13	4.00	.....	.....	3.50	.....	135
Atlantic, c.....	25	40,000	35.00	34.63	.....	.....	34.75	34.50	34.75	34.00	34.50	34.00	35.50	33.00	1,231
Baltic, c.....	25	100,000	49.50	49.00	.....	.....	49.00	48.00	49.50	48.00	48.00	47.00	46.50	46.00	2,432
Bingham, c. & ...	10	190,000	25.75	25.50	.....	.....	29.50	27.00	29.50	27.88	28.25	27.00	27.25	26.00	23,278
Bonanza Dev....	10	800,000	.....	.....	.....	.....	.....	.....	.....	.....	1.50	.....	1.38	.....	25
Boston & Mont..	25	150,000	432	425	.....	.....	438	425	442	435	437	431	438	431	4,256
British Columbia	5	200,000	.....	.....	.....	.....	.....	.....	.....	.....	18.00	.....	16.50	14.50	1,465
Butte & Bost., c.	10	200,000	116	113	.....	.....	119	116	118	116	117	116	116	115	13,681
Cal. & Hecla, c..	25	100,000	835	.....	.....	.....	835	.....	885	.....	885	.....	825	.....	82
Centennial, c....	25	90,000	31.75	31.00	.....	.....	32.00	31.50	32.00	30.00	30.00	29.00	29.50	28.75	6,134
Cent'l-Eureka....	25	100,000	33.50	32.00	.....	.....	34.50	33.50	34.00	32.50	33.00	31.00	32.00	31.00	7,420
Central Oil.....	25	60,050	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cochiti, g.....	10	175,000	8.50	7.50	.....	.....	8.25	8.03	8.25	8.00	8.38	8.00	8.25	8.00	6,787
Cons. Mercur, g.	5	1300,000	4.00	3.56	3.88	3.50	3.88	3.50	3.75	3.63	3.88	3.25	3.63	3.38	96,205
Copper Range ...	25	100,000	59.50	58.00	59.50	58.00	59.50	58.00	60.00	58.88	58.13	56.75	57.00	55.50	7,253
Daly-West	20	150,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36.00	.....	300
Dominion Coal...	100	150,000	37.00	36.25	38.00	37.00	38.00	37.00	38.75	38.00	38.50	38.00	38.00	37.50	6,570
do. pref.	100	30,000	.....	.....	.....	.....	.....	.....	113⅜	.....	.....	.....	113¾	.....	120
Elm River.....	12	100,000	5.50	.....	.....	.....	.....	.....	6.88	5.50	6.00	.....	5.88	.....	2,920
Franklin, c.....	25	100,000	18.75	18.00	20.00	19.00	20.00	19.00	20.00	19.00	19.75	.....	19.50	19.00	2,531
Humboldt.....	25	40,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
I. Royal Con., c..	25	100,000	46.00	45.00	.....	.....	50.00	46.25	54.00	50.00	53.00	51.25	53.25	52.00	16,683
Mass Con.....	25	100,000	20.00	19.50	.....	.....	20.00	19.50	20.88	19.38	20.00	19.50	19.38	.....	3,798
Mayflower.....	25	100,000	2.75	2.50	.....	.....	.....	.....	2.33	.....	2.50	.....	.....	.....	200
Melones.....	10	167,576	1.50	.....	.....	.....	.....	.....	1.25	1.00	1.00	.....	.....	.....	700
Merced.....	15	100,000	.....	.....	.....	.....	.....	.....	.....	.....	5.13	5.00	.....	.....	500
Michigan.....	25	100,000	7.25	.....	.....	.....	7.50	.....	7.50	.....	7.50	.....	7.75	7.50	1,580
Mohawk, c.....	25	100,000	35.00	34.00	.....	.....	35.75	34.88	36.00	35.00	35.50	34.25	35.00	34.38	11,513
Mont. C. & C....	25	200,000	6.50	.....	.....	.....	6.50	.....	7.00	6.50	6 00	.....	.....	.....	710
Napa t on.....	7	100,000	.....	.....	.....	.....	.....	.....	.....	.....	4.25	4.00	.....	.....	100
N.E. Gas & Coke	100	100,000	11.00	.....	.....	.....	11.50	11.00	13.13	11.50	13.00	11.25	12.25	11.75	8,539
N. A. G. Dreg...	10	100,000	.20	.15	.....	.....	.15	.10	.....	.....	.....	.....	.....	.....	10,465
Old Dominion, c	25	150,000	36.50	35.50	.....	.....	33.50	36.00	36.00	34.75	35.00	33.50	34.00	35.00	7,529
Osceola, c.....	25	98,000	88.00	.....	.....	.....	88.00	87.00	88.50	87.00	89.00	87.75	88.00	87.00	1,023
Parrot, s c.....	10	229,350	57.00	56.75	.....	.....	57.00	56.50	57.00	55.75	56.00	55.00	55.50	54.50	3,100
Phoenix Con	25	100,000	4.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	.....	350
Quincy, c.....	25	100,000	184	181	.....	.....	189	180	189	.....	180	.....	180	.....	414
Rhode Island....	25	100,000	6.50	6.00	.....	.....	6.00	.....	6.50	6.30	6.00	.....	6.00	.....	3,360
Santa Fe, g. c...	10	250,000	9.50	9.25	.....	.....	9.75	9.50	9.50	90.0	9.75	8.38	8.75	8.63	6,201
San Ysabel.....	5	130,000	.....	.....	.....	.....	.....	.....	.....	.....	1.25	.....	1.25	1.00	1,020
Shawmut Oil	25	50,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tamarack, c.....	25	60,000	340	.....	.....	.....	345	.....	340	338	340	.....	.....	.....	216
Tecumseh.....	25	50,000	2.00	.....	.....	.....	.....	.....	1.56	.....	.....	.....	1.75	.....	235
Trimountain....	25	100,000	46.00	43.00	.....	.....	.....	.....	.....	.....	44.00	42.00	44.00	42.50	549
Trinity.....	25	160,000	36.50	35.50	.....	.....	37.00	35.50	36.75	35.00	35.75	33.50	34.63	32.50	7,755
Union C. L.....	25	80 000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
UnitedStatesMg.	25	250,000	23.00	21.75	.....	.....	24.00	22.00	24.00	23.13	23.38	22.25	22.50	21.50	19,919
U. S. Oil.....	25	100,000	18.75	13.50	.....	.....	14.00	18.50	12.75	.....	13.50	.....	.....	.....	320
Utah Con., g. c..	5	900,000	37.00	36.00	.....	.....	36.75	35.00	36.25	35.25	35.75	35.00	35.50	34.50	6,356
Victoria.....	25	100,000	4.00	.....	.....	.....	4.00	.....	4.00	.....	4.00	.....	4.00	.....	770
Winona, c.....	25	100,000	4.75	4.50	.....	.....	4.50	.....	4.75	4.50	4.88	4.50	4.75	4.50	765
Wolverine c.....	25	60,000	54.50	53.50	.....	.....	54.00	.....	55.00	54.00	54.00	53.50	54.00	53.50	1,458
Wyandot.....	25	100,000	.....	.....	.....	.....	.....	.....	1.75	.....	1.50	.....	1.75	.....	680

† Official quotations Boston Stock Exchange. Total sales, 330,297 shares.

PHILADELPHIA, PA.§

NAME OF COMPANY.	L'cation.	Par Val.	Apr. 18. H.	Apr. 18. L.	Apr. 19. H.	Apr. 19. L.	Apr. 20. H.	Apr. 20. L.	Apr. 22. H.	Apr. 22. L.	Apr. 23. H.	Apr. 23. L.	Apr. 24. H.	Apr. 24. L.	Sales
Am. Alkali.....	.....	$50	1.88	1.75	1.88	1.75	1.88	.....	1.88	1.75	1.88	1.63	2.00	1.25	13,679
Am. Cement.....	.....	10	.....	.....	7.00	.....	7.00	.....	7.00	.....	7.00	.....	7.00	.....	633
Bethlehem Iron.	Pa.	50	21.75	21.50	.....	.....	.....	.....	60.63	60.50	.....	.....	60.50	.....	10
Bethlehem Steel	"	50	21.75	21.00	21.25	21.13	21.63	21.00	21.75	21.00	21.50	20.75	21.50	21.13	5,442
Cambria Iron...	"	50	.....	.....	46.00	45.50	46.50	46.00	46.88	.....	.....	.....	47.00	.....	2,075
Cambria Steel...	"	50	24.00	23.25	23.50	23.00	24.00	23.50	23.88	23.38	23.50	23.00	23.50	23.00	53,418
Susq. I. & S.....	"	10	.....	.....	2.38	2.25	2.25	.....	2.25	.....	2.25	.....	2.25	.....	690
United Gas I....	"	50	124⅜	124	124	.....	125⅝	123½	123¾	123⅛	123⅛	123	123¾	123¼	1,927

Total shares sold, 77,937. § Reported by Townsend, Whelen & Co., 309 Walnut St. Philadelphia.

SALT LAKE CITY, UTAH. Apr. 20.

STOCKS.	Shares.	Par val.	Bid.	Asked.	STOCKS.	Shares.	Par val.	Bid.	Asked.
Ajax.....	300,000	$10	$1.18½	$1.19	Horn Silver.....	400,000	$25	$1.05	$1.40
Albion.....	.....	.....	.30	.75	Joe Bowers.....	400,000	1	.01	.01⅛
Alice.....	400,000	25	.27½	.50	Lower Mammoth.	150,000	1	4.52½	4.85
Anchor.....	.....	.....	2.35	4.00	Mammoth	400,000	5	2.45	2.51½
Ben Butler.....	.....	.....	.12	.12½	May Day.....	400,000	¾	.95¾	.96
Bullion-Beck & Ch..	100,000	10	3.10	3.25	Northern Light ..	400,000	5	.10	.10¾
Centennial Eureka..	200,000	25	50.50	53.50	Ontario.....	150,000	100	8.50	9.00
Cons. Mercur.....	1,000,000	5	3.53	3.60	Rocco-H'st'k-Nev.	.....	.....	.....	1.02
Dalton.....	500,000	5	.08	.11	Sacramento.....	1,000,000	5	.42	.45
Dalton & Lark.....	2,500,000	1	.07½	.08½	Showers Cons....	400,000	5	.13½	.13
Daly.....	150,000	20	1.96	2.05	Silver King.....	150,000	20	78.00	87.50
Daly-West.....	150,000	20	84.95	86.00	Silver Shield.....	.....	.....	.08½	.....
Dexter.....	200,000	5	.56	.77½	Star Consolidated	500,000	1	.62¾	.63¾
Eagle & Blue Bell..	250,000	1	.71	.74	Sunbeam.....	250,000	1	.....	.35
Four Aces.....	250,000	1	.....	.06½	Swansea	100,000	5	3.90	3.98
Galena.....	100,000	10	.06	.11	South Swansea....	150,000	1	.64½	.68
Golden Eagle.....	250,000	1	.01⅞	.02	Utah.....	100,000	1	.56	.75
Grand Central.....	250,000	1	6.52½	6.62½	Valeo.....	200,000	10	.24	.30
Homestake.....	400,000	1	.....	.08	Yankee Consol'd..	250,000	0.10	1.31	1.32½

TORONTO, ONT.

NAME OF COMPANY.	Par val.	Apr. 12. B.	Apr. 12. A.	Apr. 18. B.	Apr. 18. A.	Apr. 15. B.	Apr. 15. A.	Apr. 16. B.	Apr. 16. A.	Apr. 17. B.	Apr. 17. A.	Apr. 18 B.	Apr. 18 A.	Sales.
Ontario:														
Golden Star.	1	.07¾	.07⅞	.07¾	.07½	.....	.....	.06⅞	.07½	.06¾	.07	.06½	.07¼	26,960
Ham Reef...	1	.....	.....	.01½	.....	.....	.....	.....	.....	.01½	.....	.....	.....	1,000
British Col.:														
Cariboo M'k	1	.34	.39	.34	.38	.....	.....	.34	.37	.34	.37	.34	.37	1 000
Center Star.	1	.....	.....	.....	.....	.....	.....	.....	.....	.50	.....	.....	.....	500
Crow's N. C.	25	80.00	86.00	80.00	86.00	.....	.....	80.00	.....	80.00	86.00	80.50	86.00	.....
Deer Trail ..	1	.01¾	.02¼	.01½	.02½	.....	.....	.01½	.....	.....	.....	.....	.....	11,000
Eve Star	1	.03	.06	.03¼	.06	.....	.....	.05	.06	.03	.06	.03	.0	.....
Fairview....	1	.02¾	.03¾	.02¾	.03¼	.....	.....	.02½	.03¼	.02¾	.03½	.02½	.03¼	7,000
Iron Mask..	1	.24	.38	.33½	.38	.....	.....	.32	.38	.32	.38	.33	38	1,000
Jim Blaine..	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Knob Hill...	1	.45	.53	.45	.55	.....	.....	.45	.58	.....	.....	.45	.55	.....
Mont Cristo.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mont & Lon	0.24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morrison....	1	.04	.06	.04¼	.....	.....	.....	.03½	.06	.03	.05	.03	.35½	10,000
Mount. Lion	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Star..	1	.65	.68	.65	.80	.....	.....	.60	.75	.68	.73	.50	.76	.....
Payne.....	1	.32	.39	.33	.38	.....	.....	.32	.38	.33	.38	.22	.32	.....
Princess M..	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rambler	1	.24	.27½	.24	.27	.....	.....	.24	.27	.22	.26	.22	.25	.....
Republic....	1	.25	.26½	.25	.29	.....	.....	.21	.22	.15	.17	.13	21.	3,500
Van Anda...	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Victory Tri.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Virtue.....	1	.10	.15	.10	.17	.....	.....	.10	.14	.09	.13½	.08	.14	.....
War Eagle..	1	.33	.38	.37	.33	.....	.....	.32	.38	.27	.34	.25	.31	.....
Waterloo...	0.10	.02	.02½	.01¾	.02½	.....	.....	.02	.02½	.02	.02½	.02	.02½	5,500
White Bear.	1	.03¼	.03¾	.03½	.03½	.....	.....	.03	.03¾	.03	.03¾	.02¾	.03	14 500
Winnipeg ..	1	.05	.08	.06	.08	.....	.....	.06	.08½	.05	.08	.05	.08	.....
Develop Co.:														
B.C.G. Field	1	.02	.02⅜	.02	.02¼	.....	.....	.02⅜	.05	.02	.02⅜	.02	.02⅜	.....
Can. G. F. S.	0.10	.06½	.07	.06½	.07	.....	.....	.06½	.07	.06½	.07	.05½	.07	500

Total shares sold, 82,169.

COLORADO SPRINGS, COLO.§

NAME OF COMPANY.	Par val.	Apr. 15. B.	Apr. 15. A.	Apr. 16. B.	Apr. 16. A.	Apr. 17. B.	Apr. 17. A.	Apr. 18. B.	Apr. 18. A.	Apr. 19. B.	Apr. 19. A.	Apr. 20. B.	Apr. 20. A.	Sales.
Acacia.....	$1	.01¾	.02⅛	.13⅞	.14½	.13⅞	.14	.13⅞	.14	13½	.13⅝	.13	.13⅝	35,200
Alamo.....	1	.12¾	.13	.12¾	.....	.12⅞	.13⅛	.12⅞	.13	.12⅞	.13½	.13	.....	5,100
Am. Con....	1	.05	.05½	.01	.01½	.05	.05½	.05	.05½	.04⅝	.05	.....	.....	4,000
Anaconda..	1	.39¾	.39¾	.39¾	.41	.40	.40¾	.40½	.....	4.75	.....	.40	.....	22,500
Anchor.....	1	.....	.....	.....	.....	.....	.....	.01½	.02	.01⅜	.02	.01¾	.02	.....
Anchoria L	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Antelope..	1	.01⅝	.02	.01⅞	.02¼	.....	.....	.01½	.....	.01⅝	.....	.03	.04	4.000
Aola.....	1	.02⅜	.03⅜	.03	.03⅜	.02¾	.03½	.03	.03¾	.03½	.....	.03¼	.03½	21,000
Arcadian...	1	.....	.....	.04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arg'ntum J	1	.22	.....	.23	.30	.26	.30	.25½	.....	.25	.29	.25	.28	2,400
Banner.....	1	.02¾	.03	.02¾	.....	.02¾	.03¼	.02¾	.03	.02¾	.....	.02¾	.03	1,000
Battle Mt.C	1	.22	.23¾	.22¼	.23¼	.22	.22½	.21	.21⅝	.20	.21	.20	.20½	7,000
Ben Hur....	1	.06½	.08	.06½	.08	.06⅛	.08	.06¼	.08	.06¾	.....	.07	.07½	5,000
Black Bell .	1	.11	.11¾	.11	.12	.10	.11¾	.10	.11¼	.10	.11½	.10	.10½	4,500
Blue Bell...	1	.12½	.18	.16⅝	.17	.16¾	.16¾	.16¾	.16⅝	.16	.17	.16¾	.17	10,000
Bob Lee....	1	.....	.....	.04½	.04⅝	.04	.04¼	.03⅞	.04¼	.04	.04⅜	.04¼	.....	10 000
Buckhorn..	1	.03⅞	.04⅛	.03¾	.04	.03¾	.04	.04	.04⅛	.04	.04¼	.04	.04⅛	13,000
Cadillac....	1	.01⅞	.02	.01⅞	.02⅛	.....	.....	.01⅞	.02¼	.01⅞	.02	.01⅞	.02⅛	1,000
Central C'n	1	.03⅝	.03	.09	.09¼	.03½	.09⅝	.03⅝	.09⅝	.09	.09⅝	.03⅝	.....	32,000
Champion..	1	.....	.....	.....	.03⅞	.....	.05	.04⅝	.05⅛	.04¾	.05⅛	.04¾	.05⅛	3,000
Chicolo	1	.02½	.02⅝	.02½	.02¾	.02½	.02⅝	.02½	.02¾	.02½	.02¾	.02½	.02⅝	2,000
C. K. & N..	1	.02	.02¼	.02⅜	.02¼	.02	.02¼	.02	.02⅜	.02	.02¼	.02	.02¼	6 000
C. C.Col'bia	1	.13⅝	.14	.....	.....	.18	.13⅜	.....	.....	.13¼	.14	.13¼	.14	15,300
C. C. G. Ext	1	.09	.10	.06	.13	.09	.10	.09½	.09½	.08½	.10	.08	.09½	5,000
C. C. & Man	1	.07 Y	.07¾	.07¾	.07¼	.07	.07½	.07½	.07¾	.07½	.07	.07½	.07¾	12,000
Copper Mt.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Creede& CC	1	.03¾	.03⅞	.03½	.09¾	.08	.09	.08	.11	.08	.....	.09	.09⅞	2,000
C. C. Con...	1	.09½	.09¾	.09¼	.09½	.09⅜	.09⅝	.09¼	.....	.09½	.09⅞	.09⅝	.09¾	13,500
Dante.....	1	.07	.07½	.07	.07¾	.07	.07¾	.06¾	.07¼	.06⅞	.07	.06½	.07⅛	4,200
Des Moines	1	.....	.....	.05½	.06	.05½	.06⅝	.05¾	.....	.05½	.05⅞	.05½	.....	4,000
Eclipse.....	1	.08	.09	.06⅜	.08⅝	.08¼	.09	.08⅜	.09	.08⅛	.08⅝	.08⅜	.08⅝	3,000
Elkton Con	1	1.62	1.62¼	1.61	1.61½	1.38	1.64	1.64½	1.65⅞	1.67¼	1.67½	1.64½	1.66	106,293
El Paso G..	1	.41	.42	.39½	.41	.39½	.41	.40½	.41	.39½	.40½	.39½	.40½	28,317
Enterprise.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
F. Rawlings	1	.23¾	.24⅜	.....	.25½	.23½	.....	.23	.27	.24	.27	.26	.27	3,100
Findley....	1	.....	.12	.11½	.11⅝	.11	.....	.11	.12	.11½	.....	.11⅝	.12	3,000
Garf. Conn.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Fl..	1	.35	.40	.....	.39½	.....	.39½	.....	.....	.....	.....	.33½	.....	3,400
Gold Hill...	1	.....	.01½	.01¾	.02	.....	.02⅝	.01⅝	.02	.01¾	.02	.01½	.02	3,000
Gold Sov'n.	1	.05⅞	.....	.06	.06¼	.06	.06⅛	.04⅜	.06¼	.06¼	.06⅜	.06¼	.06⅛	84,000
Hayden.....	1	.....	.....	.01¾	.01¾	.....	.....	.....	.....	.....	.....	.....	.01¾	1,000
Humboldt..	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ida May....	½	.16½	.20	.16⅜	.20	.13	.15	.12	.18	.12	.18	.12	.18	.....
Ing. Con....	½	.19½	.19	.18¾	.19	.13¾	.19½	.19	.20	.19½	.....	.13½	.20	23,500
Ironclad....	1	.05⅝	.06	.05⅞	.05⅝	.05⅞	.05⅝	.05¼	.....	.05⅞	.....	.05¾	.05⅞	4,000
Isabella....	1	.65	.68	.65	.68½	.20¾	.71	.70¾	.72	.67½	.70	.69	.70	28,475
Jack Pot..	1	.....	.....	.50	.....	.50	.55	.52	.54	.5.	.58	.52	.....	4,400
Josephine..	1	.01⅛	.....	.01⅛	.01¼	.01⅛	.01¾	.01¼	.....	.01½	.....	.06⅞	.07¼	4,000
Key West..	1	.....	.....	.01½	.02	.....	.....	.....	.....	.02	.....	.01½	.02⅛	1,000
Lexington .	1	.07⅛	.07¼	.07⅛	.07⅜	.07⅛	.07¼	.07	.07¼	.07¼	.07½	.....	.....	15,500
Magnet R..	1	.02⅞	.03	.02⅞	.03	.02⅝	.03	.02⅞	.03	.02⅛	.03	.02⅞	.03	4 000
Margaret..	1	.....	.02	.01⅝	.02	.01⅝	.02	.....	.02	.01½	.02	.....	.02	.....
Margery..	1	.02	.02⅜	.02	.02⅜	.02	.02⅛	.02	.....	.02	.06	.02	.....	10,000
Matoa.....	1	.11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,000
Midway.....	1	.03	.03¼	.03¼	.03⅝	.03¼	.03⅝	.03⅝	.03½	.03	.03⅜	.03	.03⅜	3,000
M. J. T.....	1	.02⅜	.02¾	.02½	.....	.02⅝	.02⅝	.02½	.02¾	.02½	.02¾	.02¾	.02⅝	1,000
Mobile.....	1	.02⅝	.02¾	.02	.02¾	.....	.02⅝	.....	.02⅝	.02¼	.02¾	.02⅝	.02⅛	11,000
Moll.Dwyer	1	.05¼	.05⅜	.05	.05¼	.05	.05¼	.05	.05½	.04⅝	.05	.04⅝	.....	13,000
Mollie Gib.	1	.22½	.23	.22¾	.23½	.21½	.23	.23	.....	.22½	.....	.23	.24	4,000
Monarch...	1	.04⅜	.04¾	.04⅜	.04¾	.04½	.04¾	.04¾	.04⅞	.04⅝	.04¾	.04⅜	.04⅞	4,000
Montreal...	1	.03	.03½	.03	.....	.03	.04	.03	.04	.03½	.....	.03	.04	3,000
Moon-A'c'r	1	.29½	.....	.29	.30¼	.29½	.30½	.29½	.....	.29½	.....	.29	.31	3,500
Morning S .	1	.....	.....	.02⅞	.....	.02⅞	.....	.02¾	.03¼	.02¾	.03⅛	.02¾	.03¼	.....
Mtn.Beauty	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mt. Rosa...	1	.30	.....	.30	.....	.....	.....	.30	.....	.30	.....	.30	.....	.....
National....	1	.04⅝	.04⅞	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04⅞	.04⅝	.04¾	18,000
Nellie V...	1	.05	.05¼	.04½	.05½	.04¾	.05	.04¾	.05	.04¼	.06	.....	.05⅛	14,000
New Haven	1	.07⅛	.07¾	.07½	.07⅝	.07¼	.07¾	.07½	.07⅝	.07⅛	.07⅝	.07⅝	.....	31,150
Olive B'nch	1	.03⅛	.03¾	.03½	.03¾	.03⅜	.03⅝	.03½	.03¾	.03½	.03¾	.03½	.03¾	4,000
Ophir	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oriole.....	1	.02⅞	.03⅛	.02⅞	.03	.02⅞	.03	.02⅞	.02	.02⅝	.03	.02⅞	.03⅛	1,000
Orphan.....	1	.13½	.....	.14	.16	.14	.16	.14	.16	.14	.16	.14	.16	.....
Pelican.....	1	.....	.02½	.02	.02¾	.....	.02	.01½	.02	.01⅝	.02	.0.½	.02	9,000
Pharmacist

STOCK QUOTATIONS.

LONDON.

April 12.

NAME OF COMPANY.	Country.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
American:			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields, g	Alaska	£300,000	1 0 0	2 3	Jan., 1901	16 3	18 9
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 17 6	5 2 6
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Oct., 1900	10 12 6	10 17 6
British Am. Corp	British Col'mbia	1,500,000	1 0 0	2 0	Mar., 1900	4 6	5 6
Copiapo, c	Chile	200,000	2 0 0	3 4	Dec., 1900	3 6 3	3 8 9
De Lamar, g., s	Idaho	400,000	1 0 0	0 6	May, 1900	2 6	3 6
El Oro, g	Mexico	1 000,000	1 0 0	1 0	Feb., 1901	1 6 8	1 8 9
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	2 2 6	2 5 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	5 0	7 6
Hall Mg. & Sm., c., s	British Col	325,000	1 0 0	.....	.....	4 3	5 3
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	7 7 6	7 12 6
Le Roi No. 2, g	" "	120,000	5 0 0	.....	.....	4 0 0	4 5 0
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	2 6	7 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	3 5
Mountain Copper	California	1,250,000	5 0 0	9 0	Apr., 1901	4 15 0	5 0 0
Stratton's Independence	Colorado	1,100,000	1 0 0	9	" "	1 11 3	1 13 9
St. John del Rey, g	Brazil	600,000	1 0 0	1 0	Dec., 1900	1 1 3	1 3 9
Utah Con., g. (Highl'nd Boy)	Utah	300,000	1 0 0	rts.	Mar., 1898	7 5 0	7 10 0
Ymir, g	British Col'mbia	300,000	1 0 0	1 0	Jan., 1901	1 8 9	1 11 3
European:							
Linares, l	Spain	45,000	3 0 0	7 0	Mar., 1901	6 0 0	7 0 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	£1	" "	3 12 3	3 17 6
Rio Tinto, c	Spain	1,625,000	5 0 0	£2	Nov., 1900	59 10 0	59 15 0
" " pref	" "	1,625,000	5 0 0	2 6	" "	6 0 0	6 5 0
Tharsis, c	" "	1,250,000	2 0 0	15 0	Apr., 1900	8 5 0	8 10 0
Australian:							
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	2 7 6	2 10 0
Broken Hill Prop., s	N. S. Wales	384,000	8 0	1 6	Nov., 1900	2 1 6	2 7 6
Great Boulder Prop	W. Australia	175,000	2 0	6	Feb., 1901	3 9	1 4 3
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	Oct., 1900	3 13 9	3 16 3
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Nov., 1900	8 6 3	8 8 9
Kalgurlie, g	"	120,000	1 0 0	rts.	Oct., 1899	3 10 0	3 12 6
Lake View Consols, g	"	250,000	1 0 0	5 0	Aug., 1900	8 18 9	9 1 3
*Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0 0	2 0	Apr., 1901	4 17 6	5 2 6
*Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Apr., 1901	4 13 9	4 16 3
Waihi g	New Zealand	330,000	1 0 0	2 6	Mar., 1901	8 0 0	8 5 0
Indian:							
Champion Reef, g	Colar Fields	220,000	10 0	4 0	May, 1901	6 0 0	6 2 6
Mysore Gold, g	"	250,300	10 0	rts.	Dec., 1900	5 17 6	6 0 0
Nundyroog, g	"	242,000	1 0 0	2 9	Mar., 1901	4 7 6	4 10 0
Ooregum, g	"	145,000	1 0 0	4 0	Apr., 1901	5 1 3	5 3 9
" pref. g	"	120,000	1 0 0	4 0	" "	5 15 0	6 0 0
African:							
British S. Africa, chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 8 9	3 11 3
Cape Copper, c	"	600,000	1 0 0	5 0	Jan., 1901	5 5 0	5 10 0
" pref	"	150,000	2 0 0	5 0	" "	4 10 0	4 15 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 12 6	5 17 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 2 6	1 7 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	14 15 0	15 5 0
De Beers Con., d	Cape Colony	3,350,000	5 0 0	£1	Jan., 1901	32 0 0	32 5 0
Ferreira, g	Transvaal	90,000	1 0 0	30 0	Aug., 1899	21 10 0	22 0 0
Geldenhuis Deep, g	"	330,000	1 0 0	8 0	" "	15 2 6	15 7 6
Geldenhuis Est., g	"	200,000	1 0 0	10 0	" "	6 12 6	6 17 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Apr., 1900	8 10 0	8 15 0
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Sept., 1900	16 10 0	17 10 0
Johannesburg Con. Invet	So. Africa	2,750,000	1 0 0	2 0	Aug., 1899	2 8 9	2 5 0
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Sept., 1899	6 0 0	6 10 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Aug., 1899	3 6 3	3 8 9
May Con., g	"	280,000	1 0 0	6 0	July, 1899	4 5 0	4 7 6
Meyer & Charlton, g	"	130,000	1 0 0	8 0	June, 1899	5 7 6	5 12 6
Namaqua, c	Cape Colony	300,000	2 0 0	4 0	Dec., 1900	5 0 0	5 5 0
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	4 3 9	4 6 2
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	" "	42 0 0	42 5 0
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	.....	9 12 6	9 17 6
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 1 3	1 3 9
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 6 3	6 8 9
Wolhuter, g	"	830,000	4 0 0	2 0	Feb. 1899	4 10 0	4 15 0

C, copper. D, diamonds. G, gold. L, lead. S, silver. † Ex-Dividend.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Apr. 15 B.	Apr. 15 A.	Apr. 16. B.	Apr. 16. A.	Apr. 17. B.	Apr. 17. A.	Apr. 18. B.	Apr. 18. A.	Apr. 19. B.	Apr. 19. A.	Apr. 20. B.	Apr. 20. A.	Sales.
Acacia	1	.14⅛	.14⅜	.....	.....	.14	.14¼	.13¾	.....	13¾	.14	.13	13½	36,500
Alamo	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Anaconda	1	.....	.....	.....	.....	.40	.41⅛	.41⅛	.41½	.41	.41⅛	.....	.41	1,500
Arg. J	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.25½	.....	.....
Dictator	1	.01⅝	.02	.....	.....	.01½	.....	.01½	.01⅝	.01⅝	.....	.01⅝	.01¾	57,000
Elkton	1	1.60	1.60¼	.....	.....	1.62½	1.65	1.66½	1.67	.....	.....	.....	.....	4,322
Ironclad	1	.....	.....	.....	.....	.....	.....	.....	.....	.05	.05¾	.....	.....	.....
Isabella	1	.65	.....	.....	.....	.68	.....	.72⅝	.....	.71	.....	.70	.....	.....
Josephine	1	.....	.....	.....	.....	.01¼	.01⅜	.02¼	.02⅝	.....	.....	.....	.....	4,000
Magnet R	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
National	1	.04	.04⅛	.....	.....	.04⅛	.05	.04⅛	.04¾	.04½	.04¾	.....	.04⅞	13,000
New Haven	1	.07¼	.07¾	.....	.....	.07¾	.07¾	.....	.....	.07	.07½	.07½	.07⅝	4,000
Reno	1	.02¾	.02½	.....	.....	.02⅝	.02¾	.....	.02⅞	.....	.....	.02½	.....	10,500
Republic	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.06¾	.06⅞	5,000

‡ Official Quotations Denver Stock Exchange. Total sales, 135,322 shares.

SPOKANE, WASH.

Week Apr. 19.

NAME OF COMPANY.	Par val.	B.	A.	Sales.	NAME OF COMPANY.	Par val.	B.	A.	Sales.
Crystal	....	.05¼	.03¾	1 000	Mountain Lion	$1	.30	.20	.....
Deer Trail Con	$1	.02⅜	.01⅝	2,000	Princess Maud	0.10	.02	.01½	14,000
Evening Star	1	.05	.04	.....	Quilp	.....	.29	.20	7,000
Gold Ledge	....	.01⅞	.01⅝	5,000	Rambler Cariboo	0.25	.25	.20	2,000
Jim Blaine	1	.....	.....	.....	Reservation	.....	.04¼	.03½	3,000
Lone Pine Surp. Con	1	.07⅛	.06½	5,000	Sullivan	.....	.09	.08	18,000
Morning Glory	0.10	.05⅛	.04⅛	43,000	Tom Thumb	.....	.12½	.10¼	.....

PARIS.

April 4.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	85.00	1,817.00	1,785.00
" " Firminy	"	" "	3,000,000	500	175.00	3,020.00	3,010.00
" " Fives-Lille	"	" "	12,000,000	500	.....	462.00	462.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	3,430.00	3,440.00
" " la Marine	France	Steel mfrs.	20,000,000	500	60.00	1 460.00	1,800.00
Anzin	"	Coal	.....	.....	260.00	5,500.00	5,550.00
Bolco	Lower Cal	Copper	.....	500	176.00	2,675.00	2,675.00
Brianski	Russia	Coal & iron	.....	500	.....	612.50	606.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	36.50	36.00
Courrieres	France	Coal	600,000	300	90.00	2,290.00	2,290.00
Dombrowa	Russia	"	.....	500	75.00	990.00	990.00
Dynamite Centrale	France	Explosives	.....	500	22.50	435.00	435.00
Escombrera-Bleyberg	Spain	Lead	.....	500	70.00	938.00	935.00
Fraser River	Brit. Col'mb.	Gold	250,000	25	.....	6.25	6.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	146.00	137.50
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	432.00	445.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	720.00	670.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	10.00	468.00	462.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	85.00	910.00	910.00
Napthe Baku	Russia	Petroleum	.....	.....	.....	605.00	605.00
Napthe Nobel	"	"	.....	.....	.....	522.50	538.00
" parts	"	"	.....	.....	.....	10,450.00	10,137.50
Nickel	N. Caled'nia	Nickel	10,000,000	250	17.50	487.00	510.00
Penarroya	Spain	Coal, etc	.....	500	100.00	2,480.00	2,480.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	1.75	1.75
Salines de l'Est	France	Salt	.....	500	5.00	225.00	225.00
Salines du Midi	"	"	.....	500	25.00	860.00	865.00
Vielle Montagne	Belgium	Zinc	9 000,000	80	36?00	628.25	629.00

DIVIDENDS.

COAL, IRON, OIL, AND INDUSTRIAL COMPANIES.

Number.	Name and Location of Company.		Authorized Capital Stock.	Shares. Issued.	Shares. Par Val	Dividends. Paid, 1901.	Dividends. Total to Date.	Dividends. Latest. Date.	Dividends. Latest. Amt.
1	Alabama Coal & Iron, pf	Ala	$2,500,000	25,000	$100	$43,750	$262,500	Mar., 1901	1.75
2	Altoona Coal & Coke	Pa	2,500.000	250 000	10	75,000	75,000	Jan., 1901	.30
3	Am. Agricul. Chem., pf.	U. S.	20,000,000	170,449	100	510,000	2,040,000	Mar., 1901	3.00
4	American Cement	Pa	2,100,000	200,000	10	80,000	220,000	Jan., 1901	.40
5	American Coal	Md	1,500,000	60,000	25	75,000	1,057,500	Mar., 1901	1.25
6	Am. Fuel Oil	Cal	100,000	100,000	1	1,000	15,000	Jan., 1901	.01
7	Am. Iron & Steel, com	Pa	17,000,000	34,000	50	8,500	42,500	Jan., 1901	.25
8	Am. Iron & Steel, pf	Pa	3,000,000	60,000	50	37,500	237,480	Jan., 1901	.62½
9	Am. Sheet Steel, pf	U. S.	26,000,000	245,000	100	428,750	428,750	Jan., 1901	1.75
10	Am. Steel Hoop, pf	U. S.	14,000,000	140,000	100	245,000	1,470,000	Jan., 1901	1.75
11	Am. Steel & Wire, com	U. S.	50,000,000	500,000	100	1,500,000	4,125,000	Apr., 1901	1.25
12	Am. Steel & Wire, pf	U. S.	40,000,000	400,000	100	1,400,000	7,000,000	Apr., 1901	1.75
13	Arizona Western Oil	Cal	100,000	100,000	1	.....	1,000	Sept., 1900	.01
14	Bethlehem Steel	Pa	15,000 000	300,000	50	150,000	1,050,000	Mar., 1901	.50
15	Buckhorn Oil	Cal	200,000	16,000	10	.....	3,800	Mar., 1900	.05
16	Burlington Oil	Cal	60,000	60,000	1	600	4,200	Jan., 1901	.01
17	California Oil & Gas	Cal	2,000,000	200,000	10	250,000	250,000	Jan., 1901	1.25
18	Cambria Iron	Pa	10,000,000	169,320	50	169,320	846,600	Apr., 1901	1.00
19	Cambria Steel	Pa	16,000,000	320.000	50	160,000	1,760,000	Feb., 1901	.50
20	Central Oil	W.Va	1,500,000	60,000	25	22,500	45,000	Feb., 1901	.37½
21	Central Oil	Cal	750,000	662,800	1	19,884	92,792	Mar., 1901	.01
22	Central Point Con. Oil	Cal	200,000	190,000	1	7,600	15,200	Feb., 1901	.02
23	Colo. Fuel & Iron, pf	Colo	2,000,000	20,000	100	80,000	1,240,000	Feb., 1901	4.00
24	Consolidation Coal	Md	10,250,000	102,500	100	205.000	5,318,000	Feb., 1901	2.00
25	Continental Oil	Cal	300,000	240,000	1	7,200	7,200	Apr., 1901	.03
26	Crucible Steel, pf	U. S.	25,000,000	250,000	100	426,991	853,982	Mar., 1900	1.75
27	Diamond Star Oil	Cal	250,000	100,000	1	.....	6,250	Nov., 1900	.02
28	Diamond State Steel	Del	3,000,000	150,000	10	60,000	160,000	Jan., 1901	.40
29	Empire Steel & Iron, pf.	U. S.	5,000,000	23,700	100	35,550	213,300	Jan., 1901	1.50
30	Federal Steel, com	U. S.	100000,000	464,843	100	2,324,215	4,067,377	Feb., 1901	5.00
31	Federal Steel, pf	U. S.	100000,000	532,609	100	798,914	7,456,568	Jan., 1900	1.50
32	Flat Top C. L. Ass'n, com	Va	5,000,000	37,141	100	37,141	315,699	Feb., 1901	1.00
33	Flat Top C. L. Ass'n, pf	Va	5,000,000	37,141	100	37,141	1,987,027	Feb., 1901	1.00
34	Four Oil	Cal	300,000	300,000	1	3,000	3,000	Feb., 1901	.01
35	General Chem., com	U. S.	12,500,000	71,679	100	71,679	485,945	Mar., 1901	1.00
36	General Chem., pf	U. S.	12,500,000	82,600	100	123,900	889,778	Mar., 1901	1.50
37	Gray Eagle Oil	Cal	250,000	100,000	2½	50,000	170,000	Jan., 1901	.50
38	Great Western Oil	Cal	100,000	10,000	10	.....	10,000	Oct., 1900	.10
39	Home Oil	Cal	100,000	100,000	1	30,000	230,000	Mar., 1901	.10
40	Homestake Oil	Cal	100,000	10,000	10	4,000	27,000	Mar., 1901	.20
41	Jefferson & Clearf. C'l, com	Pa	1,500,000	15,000	100	.....	30,000	Aug., 1900	2.00
42	Jefferson & Clearf. C'l, pf.	Pa	1,500,000	15,000	100	37,500	225,000	Feb., 1901	2.50
43	Kern Oil	Cal	100,000	100,000	1	25,000	375,000	Jan., 1901	.25
44	Kern River Oil	Cal	100,000	20,000	5	.....	10,000	Sept., 1900	.50
45	Lehigh Coal & Nav	Pa	14,346,650	286,933	50	.....	18,516,990	Oct., 1900	1.50
46	Maryland Coal, pf	Md	1,885,005	18,850	100	.....	640,869	Dec., 1900	3.00
47	Monongahela R. Coal, pf	Pa	10,00),000	200,000	50	350,000	700,000	Jan., 1901	1.75
48	Montana Coal & Coke	Mont.	5,000,000	200,000	25	.....	120,000	Oct., 1900	.30
49	National Salt, com	U. S.	7,000,000	70,000	100	105,000	350,000	Feb., 1901	1.50
50	National Salt, pf	U. S.	5,000,000	50,000	100	87,500	612,500	Feb., 1901	1.75
51	National Steel, pf	U. S.	27,000,000	270,000	100	472,500	3,780,000	Mar., 1901	1.75
52	National Tube, com	U. S.	40,000,000	398,604	100	597,906	1,793,718	Feb., 1901	1.50
53	National Tube, pf	U. S.	40,000,000	399,963	100	1,399,870	4,899,546	Apr., 1901	1.75
54	New Central Coal	Md	1,000,000	50,000	20	.....	510,000	Nov., 1900	.40
55	New Haven Iron & Steel	Conn	500,000	100,000	5	17,500	112,500	Apr., 1901	.10
56	Oceanic Oil	Cal	$100,000	100.000	$1	.....	$2,000	Dec., 1900	.01
57	Pacific Coast Borax	Cal	2,000,000	19,000	100	$57,000	819.500	Mar., 1901	1.00
58	Park Crude Oil	Cal	100,000	82,146	1	.....	4.897	Sept., 1900	.01
59	Pennsylvania Coal	Pa	5,000,000	100,000	50	.....	19,700,000	Nov., 1900	2.00
60	Pennsylvania Salt Mfg.	Pa	2,500,000	50,000	50	.....	12,550,000	Oct., 1900	3.00
61	Pennsylvania Steel, pf	Pa	1,500,000	15,000	100	52,500	183,750	Apr., 1901	1.75
62	Phila. Gas, com	Pa	14,752,131	295,042	50	184,402	922,010	Jan., 1901	.62½
63	Phila. Gas, pf	Pa	3,998,350	79,967	50	99,959	299,877	Mar., 1901	1.25
64	Pittsburg Coal., pf	Pa	32,000,000	320,000	100	560,000	2,800,000	Jan., 1901	1.75
65	Producers' & Con. Oil	Cal	1,000,000	10,000	100	4,000	57,000	Mar., 1901	.10
66	Republic Iron & Steel, pf	U. S.	25,000,000	203,069	100	710,742	2,487,596	April, 1901	1.75
67	Rex Oil	Cal	500,000	85,000	5	.....	26,000	Oct., 1900	.03
68	San Joaquin Oil	Cal	100,000	100,000	1	10,000	10,000	Jan., 1901	.10
69	Shawmut Oil	W.Va	1,250,000	50,000	25	25,000	25,000	Feb., 1901	.50
70	Shelby Iron	Ala	1,000,000	10,000	100	.....	250,000	June, 1900	12.00
71	Sloss-Sheffield Ir. & St., pf	U. S.	20,000,000	67,000	100	231,250	573,250	Apr., 1901	1.75
72	So. Cal. Oil & Fuel	Cal	300,000	100,000	1	.....	3,000	Dec., 1900	.00½
73	Standard Oil (of N. J.)	U. S.	100000,000	975,000	100	19,500,000	92,625,000	Mar., 1901	20.00
74	Sunday Lake Iron	Mich.	1,000,000	40,000	25	40,000	40,000	Feb., 1901	1.00
75	Susquehanna I. & S., pf.	Pa	1,500,000	300,000	5	22,500	537,500	Jan., 1901	.07½
76	Tenn. Coal, I. & R.R., com	Tenn.	23,000,000	225,536	100	.....	1,102,144	Nov., 1900	2.00
77	Tenn. Coal, Ir. & R.R., pf	Tenn.	248,000	2,480	100	4,960	248,000	Feb., 1901	2.00
78	Texas & Pacific Coal	Tex	2,000,000	20,000	100	60,000	1,860,000	Apr., 1901	1.50
79	United States Crude Oil	Cal	100,000	10,000	1	.....	3,200	Dec., 1900	.03
80	United States Marble	Wash	1,500,000	1,500,000	1	3,750	3,750	Mar., 1901	.00½
81	United States Oil	W.Va	2,500,000	100,000	25	.....	744,250	Oct., 1900	.50
82	Va.-Carolina Chem., com	U. S.	12,000,000	90,000	100	90,000	810,000	Mar., 1901	1.00
83	Va.-Carolina Chem., pf	U. S	12,000,000	100,000	100	200,000	1,400,000	Jan., 1901	2.00
84	Warwick Iron & Steel	Pa	1,500,000	14,133	100	.....	158,597	Nov., 1900	2.00
85	West Lake Oil	Cal	500,000	500,000	1	.....	50,000	Sept., 1900	.01
86	Westmoreland Coal	Pa	5,000,000	250,000	50	.....	750,000	Oct., 1900	1.50
87	Yukon Oil	Cal	2,500,000	100,000	2½	.....	21,000	Oct., 1900	.02

This table is corrected up to March 18th. Correspondents are requested to forward changes or additions.

DIVIDENDS.

GOLD, SILVER, COPPER, ZINC, LEAD AND QUICKSILVER COMPANIES.

Number.	Name and Location of Company.		Authorized Capital Stock.	Shares. Issued.	Par Val	Dividends. Paid, 1901.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo.	$1,500,000	1,500,000	$1	.....	$45,000	Dec.. 1900	.01
2	Adams, s.l.c.	Colo.	1,500,000	150,000	10	.....	701,000	Nov.. 1900	.05
3	Ætna Con., q.	Cal..	500,000	100,000	5	.....	225,000	Apr.. 1900	.15
4	Alaska Goldfields	Alask	1,500,000	250,000	5	$127,500	252,500	Jan.. 1901	.51
5	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	18,000	519,031	Jan.. 1901	.10
6	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	75,000	4,595,000	Jan.. 1901	.37½
7	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,875,000	Apr.. 1898	.05
8	Alliance, g.	Colo..	500,000	500,000	1	.....	47,500	Nov.. 1899	.07
9	Amalgamated, c.	Mont.	75,000,000	750,000	100	1,500,000	9,000,000	Jan.. 1901	2.00
10	Amanda, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	June. 1900	.01
11	Amazon, g.	Colo..	600,000	600,000	1	.....	121,882	May.. 1900	.10
12	American, g.	Colo..	3,000,000	300,000	10	.....	446,000	Dec.. 1899	.07
13	Amer. Sm & Ref., pref.	U. S..	32,500,000	274,000	100	479,500	3,162,053	Jan.. 1901	1.75
14	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25	.....	180,000	Jan.. 1900	1.00
15	Anaconda, c.	Mont.	30,000,000	1,200,000	25	.....	16,950,000	Oct.. 1900	2.00
16	Anchoria-Leland, g.	Colo..	600,000	600,000	1	.....	198,000	Apr.. 1899	.03
17	Anglo-Mexican, g.	Mex..	2,001,625	400,230	25	.....	1,825,048	Dec.. 1899	.24
18	Appie Ellen, g.	Colo..	600,000	600,000	1	.....	25,000	Nov.. 1898	.04
19	Apollo Con., g.	Alask	1,000,000	100,000	10	.....	210,000	Jan.. 1900	.07
20	April Fool, g.	Nev..	500,000	500,000	1	.....	16,000	Oct.. 1899	.03
21	Argonaut, g.	Cal..	2,000,000	200,000	10	.....	490,000	May.. 1900	.05
22	Arizona, c.	Ariz..	3,190,550	.....	...	421,153	1,886,001	Mar.. 1901	1.32
23	Associated, g.	Colo..	1,250,000	1,250,000	1	.....	84,000	Feb.. 1899	.01
24	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	880,000	Feb.. 1901	2.00
25	Bald Butte, g. s.	Mont.	250,000	250,000	1	45,000	967,148	Mar.. 1901	.06
26	Bankok-Cora Belle, g.	Colo..	600,000	600,000	1	.....	107,510	July.. 1896	.01
27	Big Seven, g.	Cal...	100 000	100,000	1	.....	6,000	Apr.. 1898	.03
28	Big Six, g. s. l.	Colo..	500,000	500,000	1	.....	15,000	May.. 1898	.00½
29	Boston, q.	Cal...	1,000,000	100,000	10	.....	20,000	Jan.. 1900	.10
30	Boston-Aurora, pref.	Mo...	800,000	32,000	25	.....	66,160	May.. 1900	.50
31	Boston & California, g.	Cal...	600,000	600,000	1	.....	72,000	June. 1899	.06
32	Boston & Colo. Smelting	Colo..	750,000	15,000	50	11,250	326,350	Jan.. 1901	.75
33	Boston Duenweg, z.	Mo...	1,000,000	40,000	10	.....	56,000	June. 1900	.10
34	Boston Get There, z.	Mo...	250,000	22,500	10	.....	20,250	Apr.. 1900	.10
35	Boston Gold-Copper Sm.	Colo..	1,000,000	1,000,000	1	.....	50,000	Nov.. 1900	.02½
36	Boston & Mont. Con., c.s.g	Mont.	3,750,000	150,000	25	1,500,000	22,475,000	Feb.. 1901	10.00
37	Boston-Phila., z. l.	Kas..	200,000	20,000	10	.....	2,000	May . 1900	.10
38	Boston-Providence, z., pf	Mo...	150,000	15,000	10	.....	17,242	Aug.. 1900	.05
39	Boston Springfield, z.	Mo...	500,000	20,000	25	.....	15,000	June. 1900	.25
40	Boston Sunflower, z.	Mo...	150,000	15,000	10	.....	4,500	Oct.. 1899	.30
41	Breece, l. s.	Colo..	5,000,000	200,000	25	10,000	110,000	Feb.. 1901	.05
42	Buffalo Hump, g.	Idaho	1,000,000	100,000	10	25,000	300,000	Jan.. 1901	.10
43	Bull Hill Con., g.	Colo..	1,500,000	1,500,000	1	45,000	60,000	Mar.. 1901	.01
44	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	.....	2,498,400	June. 1900	.10
45	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	63,000	1,116,090	Mar.. 1901	.07
46	Butte & Boston Con., c.	Mont.	2,000,000	200,000	10	.....	1,000,000	Dec.. 1900	5.00
47	Butterfly-Terrible, g.	Colo..	1,500,000	1,250,000	1	6,250	6,250	Jan.. 1901	.00½
48	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	.....	72,850,000	Dec.. 1900	20.00
49	Cariboo-McKinney, g.	B.Col	1,250,000	1,250,000	1	.....	478,087	Oct.. 1900	.01½
50	Centen'l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	50,000	2,467,700	Jan.. 1901	.50
51	Center Creek, l. z.	Mo...	1,000,000	100,000	10	.....	40,000	Dec.. 1900	.20
52	Center Star, g.	B. C..	3,500,000	3,500,000	1	105,000	175,000	Apr.. 1901	.01
53	Central Lead, l.	Mo...	1,000,000	10,000	100	15,000	222,000	Mar.. 1901	.50
54	Champion, g. s.	Cal...	340,000	34,000	10	.....	402,300	Dec.. 1899	.25
55	Cloverdale, z.	Mo...	1,000,000	100,000	10	.....	80,000	July.. 1900	.20
56	C. O. D., g.	Colo..	500,000	500,000	1	.....	25,000	Mar.. 1896	.01
57	Colonial, l.	Mo...	1,000,000	1,000,000	1	.....	10,000	Aug.. 1899	.01
58	Columbia, l.	Mo...	500,000	48,500	10	.....	12,125	June. 1900	.05
59	Columbian Hyd., c.	C'l'm	375,000	75,000	5	.....	454,500	Jan.. 1899	.12
60	Commodore, g.	Colo..	1,200,000	1,200,000	1	.....	432,000	Jan .. 1899	.04
61	Commonwealth, z., pref.	Mo ..	500,000	100,000	5	.....	50,000	June. 1900	.05
62	Consolidated Gold Mines	Colo..	1,000,000	1 000,000	1	30,000	160,000	Mar.. 1901	.01
63	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5	.....	1,591,000	Nov.. 1900	.11
64	Consolidated, z. l., pf.	Mo...	400,000	400,000	1	.....	8,000	Jan.. 1900	.20
65	Copiapo, c.	Chile.	1,000,000	100,000	10	.....	2,520,000	July.. 1899	1.44
66	Cordell, z. l.	Mo...	300,000	60,000	5	.....	30,000	Sept.. 1900	.05
67	Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1	.....	160,000	Mar .. 1900	.08
68	Cœsus, g.	Cal...	1,000,000	200,000	5	24,000	175,300	Mar.. 1901	.06
69	Crowned King, g. s.	Ariz..	6,000,000	600,000	10	.....	242,760	May . 1899	.02
70	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar .. 1896	.00½
71	Daly West, g.	Utah.	3,000,000	150,000	20	135,000	742,500	Mar.. 1901	.30
72	Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	.....	1,350,000	May . 1898	.15
73	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec.. 1899	.00½
74	De Lamar, g. s.	Idaho	2,000,000	400,000	5	.....	2,394,000	May . 1900	.12
75	Della S., g. s.	Colo..	1,000,000	1,000,000	1	.....	60,000	Jan.. 1897	.01
76	Dewey Con., g.	Utah.	10,000	10,000	1	2,250	4,850	Feb.. 1901	.07½
77	Dixie, g.	Utah.	125,000	125,000	1	.....	10,000	Apr .. 1900	.02
78	Doctor-Jack Pot Con., g	Colo..	3,000,000	2,900,000	1	87,000	87,000	Mar.. 1901	.01
79	Doe Run, l.	Mo...	1,500,000	10,000	100	15,000	417,072	Jan.. 1901	1.50
80	Ducktown, c. i. sul. (ord)	Tenn.	374,000	7,480	50	.....	133,144	May.. 1900	5.00
81	Ducktown (founder).	Tenn.	1,000	200	5	.....	66,160	May.. 1900	125.00
82	Eldorado, g.	Cal ..	1,000,000	100,000	10	.....	10,000	July.. 1899	.10
83	Elkton Con., g.	Colo..	3,000,000	2,500,000	1	75,000	1,054,461	Mar.. 1901	.03
84	El Oro, g. s.	Mex.	5,000,000	1,000,000	5	240,000	480,000	Feb.. 1901	.24
85	Empire State-Idaho, l. s.	Idaho	6,000,000	505,542	10	120,663	803,351	Mar.. 1901	.10
86	Enterprise, g.	Colo..	500,000	500,000	1	.....	900,000	Sept.. 1898	.05
87	Fanny Rawlings, g.	Colo..	1,000,000	1,000,000	1	.....	20,000	Aug. 1899	.01
88	Fern, g.	B. C..	200,000	200,000	1	.....	10,000	Jan... 1898	.05
89	Ferris-Haggarty, c.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Mar.. 1899	.00½
90	Florence, s.	Mont.	2,500,000	400,000	5	.....	223,780	Mar.. 1901	.05
91	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov.. 1899	.25
92	Frontino & Bolivia, c.	C'l'm	643,310	128,662	5	.....	1,109,066	Oct... 1899	.36
93	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept.. 1897	.05
94	Garfield Con., g.	Colo..	1,200,000	1,200,000	1	.....	34,000	May. 1899	.01
95	Gemini	Utah.	500,000	5,000	100	.....	700,000	Aug.. 1900	10.00
96	Gold Belt, g.	Colo..	1,250,000	1,250,000	1	.....	112,500	Aug.. 1900	.09
97	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	90,000	690,000	Mar.. 1901	.03
98	Gold Deposit, g.	Colo..	500,000	500,000	1	.....	10,000	Mar.. 1900	.02
99	Gold & Globe, g.	Colo..	750,000	750,000	1	.....	51,625	July.. 1897	.00½
100	Gold King, g.	Colo..	1,000,000	936,850	1	.....	178,001	Oct... 1900	.03
101	Golden Cycle, g.	Colo..	1,000,000	200,000	5	30,000	408,500	Mar.. 1901	.05
102	Golden Eagle, g.	Colo..	500,000	500,000	1	.....	25,000	June. 1900	.01
103	Golden Fleece, g. s.	Colo..	600,000	600,000	1	.....	569,480	Feb.. 1897	.01
104	Golden Reward, g.	S. D..	1,000,000	100,000	10	.....	155,000	Feb.. 1898	.15
105	Grand Central, g. s.	Mex..	1,500,000	250,000	5	.....	840,000	Jan.. 1900	.48
106	Grand Central, g.	Utah.	250,000	250,000	1	.....	691,250	Nov.. 1900	.10
107	Grand Gulch, c.	Ariz..	250,000	240,000	1	.....	9,600	Apr.. 1900	.01
108	Grass Valley Expl.	Cal...	100,000	30,000	2	....	30,000	Jan.. 1900	.25
109	Greater Gold Belt, g.	Colo..	5,000,000	3,800,000	1	.....	76,000	June. 1900	.02
110	Gwin, g.	Cal.	1,000,000	100,000	10	25,000	176,500	Feb.. 1901	.10
111	Hall, c. s.	B. C..	1,625,000	267,609	5	.....	220,000	May.. 1899	.24
112	Hecla, l. s.	Idaho	250,000	1,000,000	¼	.....	100,000	Dec.. 1900	.02
113	Hecla Con., s. l.	Mont.	1,500,000	30,000	50	15,000	2,235,000	Feb.. 1901	.50
114	Helena, g.	Ore..	1,000,000	1,000,000	1	15,000	65,000	Feb.. 1901	.01
115	Hidden Treasure, g.	Cal...	360,000	36,000	10	.....	457,452	Sept.. 1900	.10
116	Holy Terror, g.	S. D..	500,000	500,000	1	.....	172,000	Jan.. 1900	.01
117	Home, g. (Leadville)	Colo..	2,000,000	2,000,000	1	25,000	125,000	Mar.. 1901	.25
118	Homestake, g.	S. D..	21,000,000	210,000	100	315,000	9,718,750	Mar.. 1901	.50
119	Horn-Silver, g. s. c.z.l.	Utah.	10,000,000	400,000	25	.....	5,279,000	June. 1900	.05
120	Idaho, s. l.	B. C..	500,000	500,000	1	.....	292,000	Jan.. 1899	.05½
121	Independence Con., g.	Colo..	2,500,000	2,500,000	1	.....	100,000	Aug.. 1900	.04
122	Ingham Con., g.	Colo..	750,000	1,359,600	½	10,197	10,197	Feb.. 1901	.00¼
123	Iowa, g. s. l.	Colo..	$1,666,667	1,666,667	$1	$16,667	$153,500	Jan.. 1901	.01
124	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	Apr... 1898	.02
125	Iron Silver	Colo .	10,000,000	500,000	20	.....	2,550,000	Dec.. 1900	.10
126	Isabella, g.	Colo..	2,250,000	2,250,000	1	22,500	742,500	Mar.. 1901	.01
127	Jamison, g.	Cal...	3,900,000	390,000	10	.....	50,700	Apr... 1899	.10
128	Klondike Bonanza, g.	Klon.	750,000	52,750	5	.....	50,000	Aug.. 1899	.24
129	La Fortuna, g.	Ariz..	250,000	250,000	1	37,500	953,000	Mar.. 1901	.05
130	Lake City, g.	Colo..	50,000	50,000	1	.....	3,875	May . 1900	.01
131	Last Chance, s. l.	B. C.	500,000	500,000	1	.....	45,000	Apr.. 1899	.05
132	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	30,000	150,000	Feb.. 1901	.02
133	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov.. 1899	1.20
134	Lightner, g.	Cal...	125,000	102,255	1	2,556	15,338	Feb.. 1901	.02½
135	Lillie, g.	Colo..	1,250,000	250,000	5	.....	349,183	Apr.. 1900	.05
136	Mammoth, g. s. c.	Utah	10,000,000	400,000	25	20,000	1,810,000	Feb.. 1901	.05
137	Marian Con., g. s. z, l. i.	Colo..	5,000,000	.500,000	10	.....	202,000	Sept.. 1899	.01
138	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	30,000	210,000	Jan.. 1901	.03
139	Midget, g.	Colo..	1,000,000	1,000,000	1	.....	120,000	Dec.. 1900	.15
140	Modoc, g. s.	Colo..	500,000	500,000	1	15,000	220,000	Mar.. 1901	.01
141	Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5	.....	4,080,000	Jan.. 1895	.05
142	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	Apr.. 1899	.12
143	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	240,000	1,840,000	Jan.. 1901	3.00
144	Montreal, g.	Colo..	1,000,000	750,000	1	.....	7,500	Nov.. 1898	.01
145	Monument, g.	Colo..	300,000	300,000	1	3,000	21,124	Feb.. 1901	.01
146	Moon-Anchor, g.	Colo..	1,750,000	350,000	5	.....	261,000	Nov.. 1898	.07½
147	Moose, g.	Colo..	600,000	600,000	1	.....	186,000	Feb.. 1896	.01
148	Morning Star Drift, g.	Cal...	240,000	2,400	100	.....	854,400	Sept.. 1900	3.00
149	Morse, g.	Colo..	1,250,000	1,250,000	1	.....	215,650	May . 1899	.12
150	Moulton, g.	Mont.	2,000,000	400,000	5	.....	500,000	Oct... 1899	.05
151	Mountain, c.	Cal ..	6,250,000	250,000	25	.....	2,373,750	Oct... 1900	2.16
152	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	.....	260,271	Jan.. 1900	.10
153	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	75,000	Dec.. 1899	.04
154	Mt. Shasta, g.	Cal...	100,000	20,000	5	.....	6,000	May . 1899	.30
155	Napa Con., q.	Cal ..	700,000	100,000	7	20,000	1,120,000	Apr.. 1901	.10
156	National Lead, com.	U. S..	15,000,000	149,054	100	.....	1,341,486	Mar.. 1900	1.00
157	National Lead, pf.	U. S .	15,000,000	149,040	100	260,820	10,840,100	Mar.. 1901	1.75
158	New Elkhorn, g.	Colo..	437,500	87,500	5	.....	1,325,000	June. 1898	.48
159	New Idria, q.	Cal...	500,000	100,000	5	40,000	290,000	Apr.. 1901	.20
160	New Jersey Zinc	U. S..	10,000,000	100,000	100	400,000	3,200,000	Feb.. 1901	4.00
161	N. J. & Mo., z.	Mo...	250,000	2,500	100	.....	11,000	June.. 1900	2.00
162	New York, z.	Kas..	700,000	28,000	25	.....	6,500	Oct.. 1899	.25
163	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	60,000	1,475,000	Mar.. 1901	.10
164	New Zealand, g.	Colo..	600,000	600,000	1	60,000	60,000	Jan.. 1901	.10
165	North Star, g.	B. C..	1,500,000	1,300,000	1	39,000	156,000	Mar.. 1901	.03
166	North Star, g.	Cal ..	5,000,000	250,000	10	.....	584,850	Nov.. 1899	.20
167	Nugget, g.	Colo..	1,000,000	991,000	1	9,910	64,910	Jan.. 1901	.01
168	Old Colony Zinc & Sm.	Mo...	1,100,000	69,909	10	17,477	85,753	Feb.. 1901	.25
169	Omega, g.	Colo..	1,500,000	1,200,000	1	.....	18,188	June.. 1900	.01½
170	Ontario, s. l.	Utah.	15,000,000	150,000	100	.....	13,662,500	Apr.. 1900	.30
171	Original Empire, g.	Cal...	5,000,000	50,000	100	.....	530,000	Oct.. 1899	1.00
172	Orphan Belle, g.	Colo..	1,000,000	1,000,000	1	.....	197,899	Dec.. 1899	.09
173	Osceola, c.	Mich.	2,500,000	93,000	25	.....	3,638,500	Dec.. 1900	3.00
174	Parrot, c.	Mont.	2,300,000	229,850	10	344,775	4,738,600	Jan.. 1901	1.50
175	Payne Con., s. l.	B. C.	3,000,000	2,600,000	1	78,000	1,438,000	Jan.. 1901	.03
176	Pennsylvania Con., g.	Cal...	5,150,000	51,500	100	.....	161,325	May.. 1900	.10
177	Pioneer, g.	Cal...	1,000,000	200,000	5	.....	62,500	Mar.. 1899	.12½
178	Plumas Eureka, g.	Cal ..	1,406,250	140,625	10	.....	2,797,544	Apr.. 1900	.60
179	Pointer, g.	Colo..	1,250,000	1,250,000	1	12,500	12,500	Mar .. 1901	.01
180	Portland, g.	Colo..	3,000,000	3,000,000	1	180,000	3,487,080	Jan.. 1901	.06
181	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	55,000	Feb.. 1897	.00½
182	Queen Bess, s. l.	B. C..	500,000	100,000	5	.....	25,000	July.. 1899	.12½
183	Quicksilver, pref.	Cal...	4,300,000	43,000	100	.....	1,866,911	July.. 1900	.50
184	Quincy, c.	Mich.	2,500,000	100,000	25	300,000	12,270,000	Feb.. 1901	3.00
185	Rambler—Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	.....	105,000	Apr.. 1900	.01
186	Reco, s. l.	B. C..	1,000,000	1,000,000	1	.....	287,500	Jan.. 1898	.10
187	Republic Con., g.	Wash	3,500,000	3,500,000	1	.....	382,500	Mar.. 1900	.01
188	Reward, g.	Cal...	1,000,000	100,000	10	.....	20,000	Aug.. 1899	.20
189	Rocco-Homestake, g.s.	Nev..	300,000	300,000	1	13,500	22,500	Mar.. 1901	.01½
190	Russell-Irwin, z.	Mo ...	250,000	25,000	10	.....	15,000	Oct.. 1899	.10
191	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct.. 1899	.00½
192	St. John del Rey, g.	Br'zil	3,000,000	425,482	5	.....	13,633,991	Dec.. 1900	.24
193	St. Joseph, l.	Mo...	3,000,000	250,000	10	37,500	3,347,000	Mar.. 1901	.15
194	Santa Rita, g.	Colo..	1,000,000	1,000,000	1	.....	4,000	July.. 1900	.02
195	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	275,000	3,725,000	Mar.. 1901	.66⅔
196	Silver Shield, g.	Utah.	300,000	300,000	1	3,000	4,500	Feb.. 1901	.00½
197	Small Hopes, s.	Colo..	5,000 000	250,000	20	.....	3,325,000	Feb.. 1899	.10
198	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	90,000	1,820,000	Mar.. 1901	.03
199	Southern Boy, g.	Colo..	1,250,000	875,000	1	.....	17,500	May . 1900	.02
200	South Swansea, s. l.	Utah.	300,000	275,000	1	7,500	172,500	Mar.. 1901	.05
201	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1	.....	10,000	Nov.. 1899	.00½
202	Standard Con., g. s.	Cal...	2,000,000	178,394	10	17,839	3,981,941	Feb.. 1901	.10
203	Standard, s. l.	Idaho	500,000	500,000	1	25,000	2,215,000	Feb.. 1900	.05
204	Stratton's Independ'ce.	Colo..	5,500,000	1,000,007	5	120,001	2,885,353	Jan.. 1901	.12
205	Swansea, s. l.	Utah.	500,000	100,000	5	15,000	291,500	Mar.. 1901	.05
206	Tamarack, c.	Mich.	1,500,000	60,000	25	.....	7,200,000	Dec.. 1900	10.00
207	Tomboy, g.	Colo..	1,500,000	300,000	5	.....	956,000	Dec.. 1900	.24
208	Touraine, g.	Colo..	1,250,000	1,250,000	1	.....	87,500	Apr.. 1900	.07
209	Union, g.	Colo..	1,250,000	1,250,000	1	.....	395,244	Sept.. 1900	.25
210	Union, z. l.	Kas..	500,000	500,000	1	15,000	50,000	Mar.. 1901	.01
211	United, z. l., pref.	Mo...	6,000,000	14,938	25	.....	30,263	Oct... 1900	.50
212	Utah, g.	Utah.	1,000,000	100,000	10	.....	181,000	Oct... 1900	.02
213	Vindicator Con., g.	Colo..	1,500,000	1,500,000	1	27,500	521,000	Jan.. 1901	.02½
214	War Eagle Con., g. s. c.	B.C..	2,000,000	1,750,000	1	.....	545,250	Feb.. 1900	.01½
215	What Cheer, z.	Mo...	225,000	22,500	10	.....	11,250	May.. 1900	.20½
216	Wolverine, c.	Mich.	1,500,000	60,000	25	.....	510,000	Oct.. 1900	2.00
217	Yellow Aster, g.	Cal...	1,000,000	100,000	10	.....	459,410	Dec.. 1900	.10
218	Ymir, g.	B. C..	1,000,000	200,000	5	48,000	96,000	Jan. 1901	.24
219	Zoe, g.	Colo..	1,500,000	1,500,000	1	.....	7,500	Dec.. 1900	.00½

This table is corrected up to March 18th. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT WHOLESALE PRICES

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.08
Grains	"	.10
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03½
Grains, in kegs	"	.05@.05½
Naxos flour, in kegs	"	.03½
Grains, in kegs	"	.05@.05½
Chester flour, in kegs.	"	.03½
Grains, in kegs	"	.05@.05½
Peekskill, f.o.b. Easton, Pa., flour, in kegs	"	.01¼
Grains, in kegs.	"	.02½
Crude, ex-ship, N. Y.;		
Abbott (Turkey)	lg. ton	26.50@30.00
Afrodissia (Turkey)	"	23.00@24.00
Kuluk (Turkey)	"	22.00@24.00
Naxos (Greek) h. gr.	"	26.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02¼@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12
German	lb.	.40
Boracic, crystals	"	.10½@.11
Powdered	"	.11@.11½
Carbolic, crude, 60%	gal.	.27
Cryst, 37% drums	lb.	.23
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure.	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst	"	.28@.28¼
Powder	"	.28¼@.29
Alcohol—Grain	gal.	2.45
Refined wood, 95@97%	"	.60@.65
Purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.25
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08¼@.08½
Powdered	"	.09@.09¼
Muriate, gran.	"	.06
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.10
Chem. pure	"	60
Antimony—		
Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¼@.04½
Red	"	.07@.07⅞
Asphaltum—		
Ventura, Cal.	sh ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	lg. ton	35.00
San Valentino (Italian).	"	16.00
Seyssel (French) mastic.	sh.ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@02
Chloride, com'l	100 lbs.	1.67½@1.76
Chem. pure cryst	lb.	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.02
Barytes—Am. Cr., No. 1.	sh.ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
German, gray	"	14.50
Snow white	"	17.00
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00
Second grade	"	4.25@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	4.25@4.50
Bismuth—Subnitrate	lb	1.75
Subcarbonate	"	1.95
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	lb.	$ .02¼@.02½
Borax	"	.07¼@.07½
Calcined	"	.25
Bromine	"	.40
Cadmium—Metallic	"	1.40
Sulphate	100 lbs.	2.00@2.50
Calcium—Acetate, gray	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	80.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.75
Best	"	.80@1.00
Sulphite	lb.	.05
Cement—		
Portland, Am.	400 lbs.	bbl. 1.50@2.00
Belgium	"	1.95@2.20
English	"	2.45@2.55
German	"	2.30@2.70
"Rosendale," 300 lbs.	"	1.05
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.13
White	"	.14
Chalk—Lump, bulk	sh. ton	2.60
Ppt. per quality	lb.	.03¾@.06
Chlorine—Liquid	"	.30
Water	"	.15
Chrome Ore—		
(50% ch.) ex-ship, N. Y.	lg. ton	24.00
Sand, f.o.b. Baltimore	"	33.00
Bricks, f.o.b., Pittsburg.	M	175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ordinary	sh. ton	4.25
Best	"	6.00
Slip Clay	"	5.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.30
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.10
Best	"	.20
Copperas	100 lbs.	.40@.45
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.19¼@.19½
Powdered	"	.19¾@.20
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.50
Blasting powder, B.	"	1.25
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13@.13¼
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—		
Am. lump, 1st grade	"	14.40
2d grade	"	13.90
Gravel & crushed, 1st g	"	13.40
2d grade	"	12.40
Ground, 1st grade	"	17.90
2d grade	"	16.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump.	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—Am. f. o. b. Providence, R.I. lump.	sh. ton	8.00
Pulverized	"	30.00
German, lump	lb.	.01¼
Pulverized	"	.01½@.02
Ceylon, common	"	.03¾
Pulverized	"	.04@.08
Italian, pulv	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground. American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01¼
True	"	.04
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran.	"	.8¼
Lime—Com., ab. 250 lbs	bbl.	.70
Finishing	"	.80
Magnesite—Greece. Crude (95%)	lg. ton	6.50@7.00
Calcined	sh.ton	14.00@15.00
Bricks	M.	170.00
Am. Bricks, f o.b. Pittsburg	"	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾
Blocks	"	.06@.09
Magnesium—Chloride, com'l	lb.	$ .01¾
Fused	"	.20
Nitrate	"	0.60
Sulphate	100 lbs.	.90
Manganese—Crude-pow'd 75@75% binoxide	lb.	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.26¾
Domestic	"	.30
Marble—		
Flour	sh. ton	6.00@7.00
Mercury—		
Bichloride	lb.	.77
Mica—N. Y. gr'nd. coarse	"	.03@.04
Fine	"	.04@.05
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	19.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—		
Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.		
25@30 cold test	gal.	.09¾@.10¼
15, cold test	"	.10¾@.11¼
Zero	"	.11¾@.12¾
Summer	"	.09¼@.09¾
Cylinder, dark steam ref	"	.08¾@.10¾
Dark filtered	"	.11¾@.16¼
Light filtered	"	.14¾@.17¾
Extra cold test	"	.21¾@.26¾
Gasoline, 86° @ 90°	"	.16@.21
Naphtha, crude 68@72°	bbl.	9.60
"Stove"	gal.	.12
Linseed, domestic raw	"	.57@.61
Boiled	"	.63
Calcutta, raw	"	.85
Ozokerite	lb.	.11½
Paints and Colors—		
Chrome green, common	"	.05
Pure	"	.16
Yellow, common	"	.10¼
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.04½
Refined	"	.07
Litharge, Am. powd.	"	.05½@.06
English flake	"	.07½@.08
Glassmakers	"	.07½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02
Orange mineral, Am.	"	.07¾@.08
Foreign, as to make	"	.08@.11
Paris green, pure, bulk.	"	.12
Red lead, American	"	.05¾
Foreign	"	.07¼@.08¾
Shellac, "D. C."	"	.30
Native	"	.15
Turpentine, spirits	gal.	.36
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.10@.14
Quicksilver, bulk	"	.70
Foreign	"	.80@1.00
White lead, Am., dry	"	.05
American, in oil	"	.05¾
Foreign, in oil	"	.07¾@.09⅜
Whiting, common	100 lbs.	.40
Gilders	"	.54
Zinc white, Am., ex. dry	lb.	.04⅜@.04¾
American, red seal	"	.06½
Green seal	"	.07
Foreign, red seal, dry	"	.05¼@.05⅝
Green seal, dry	"	.07¼@.09⅞
Potash—Caustic, ord.	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.08¼
Powdered or gran	"	.14
Bichromate, Am.	"	.08¼
Scotch	"	.08½
Carbonate, hydrated	"	.04½
Calcined	"	.04
Chromate	"	.35
Cyanide (98@99%)	"	.25
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.11@.11¼
Prussiate, yellow	"	.14⅝@.15
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.60
Best strained	"	2.80
Medium	"	1.80
Salt—N Y com fine	sh. ton	2.00
N. Y. agricultural	"	1.50
Saltpeter—		
Crude	100 lbs.	3.35
Refined	"	4.25
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord.	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silicon—Carbide	lb.	.05
Silver—Chloride	oz.	$0.65
Nitrate	"	.39½
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¼
Bichromate	"	.08¼
Chlorate, com'l	"	.09@.09¼
Hyposulphite, Am.	100 lbs.	1.80
German	"	2.00
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.12½
Silicate, conc.	"	.05
com'l	"	.01
Sulphate, com'l	100 lbs.	.70
Gran., puri'd	lb.	.03
Sulphide	"	.01¾
Sulphite crystals	"	.02½
Tungstate, com'l.	"	.35
Strontium—Nitrate	"	.08
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.80
Flowers, sublimed	"	2.05
Talc—N. C, 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.62½
Tar—Regular	bbl.	1.90
Oil barrels	"	3.75
Tin—Bichloride	lb.	.09½@.10
Crystals	"	.20
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.40
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	.09@.10
Carbonate	"	.15
Chloride	"	.05
Dust	"	.06¼@.06½
Sulphate	"	.02@.02⅞

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	1.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium—Sticks	kg.	1.55
Sheets	"	2.83
Granulated	"	2.38
Powder	"	1.90
Calcium—Elect	grm.	4.28
Cerium—Fused	"	2.02
Nitrate (N. Y.)	oz.	1.25
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.20
Cobalt—(98@99%)	kg.	6.66@8.33
Pure	"	30.94
Didymium—Powd.	grm.	3.81
Fused, Elect.	"	5.47
Nitrate (N. Y.)	oz.	2.50
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	2.50
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm.	3.57
Iridium—Fused	"	1.07
Powder	"	.95
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	2.25
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—Ingot	kg.	6.19
In wire or ribbon	"	9.99
Powdered	"	5.95@7.14
Sheet	"	9.04
Molybdenum—Fused	grm.	.15
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.94
Palladium—Wire	"	.86
Sponge	"	62
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.38
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	26 28
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Com'l	"	28.56
Chem. pure crystals	"	59.50
Amorphous	"	27.36
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	107.00
Chem. pure powder	"	83.30
Thallium	"	26.18
Thorium—Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Wolfram—Fused, elect.	kg.	238.00
Powder, 95@98%	"	1.43
Chem. pure powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	2.75
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	oz.	.75

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to April 10. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.